

# UNITED KINGDOM NIREX LIMITED

## Rock Characterisation Facility

Longlands Farm, Gosforth, Cumbria

### CLOSING SUBMISSIONS OF THE APPELLANT

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# **UNITED KINGDOM NIREX LIMITED**

## **Rock Characterisation Facility**

**Longlands Farm, Gosforth, Cumbria**

### **CLOSING SUBMISSIONS OF THE APPELLANT**

#### **1. INTRODUCTION**

- 1.1 This is an Inquiry into an appeal by UK Nirex Ltd against a refusal by Cumbria County Council to grant planning permission for a Rock Characterisation Facility ("RCF") at Longlands Farm, Gosforth. The purpose of the development is to carry forward the investigations which Nirex began in 1989 into the potentiality of the site as a location for a deep repository for the disposal of intermediate level radioactive waste. The planning application under appeal is not for such a repository. Nirex have made no decision to propose a repository at Sellafield. Their decision whether to propose a repository at this location depends on the information they will obtain from the RCF. Whilst, in Nirex's view, the site holds good promise for a repository, they cannot and do not claim that the RCF will produce information which will lead to a decision to propose a repository at Sellafield. They only claim from their present understanding that the site holds sufficient promise to justify further investigations through an RCF.
- 1.2 That leads me to my first two fundamental points at the outset of these Closing Submissions.
- 1.3 First, the grant of planning permission for an RCF and the construction of it would not represent any commitment to an eventual repository at Sellafield, half-way or otherwise, whether on the part of Nirex or of the Secretary of State. The financial cost of the RCF at £195m at 1995(1) prices is substantial. But it is little more than one tenth of the total development and construction costs of £1,820m, sunk and projected, for a repository at Sellafield, if one were built. Sunk costs to the 31 March 1995 amount to £391m. So projected RCF costs represent 13.6% of projected expenditure from the 1 April 1995 to first waste emplacement. Nirex hope to obtain enough information in Phase 1 of the RCF to enable them to make a decision, one way or another, whether to propose a repository at Sellafield. The projected cost of Phase 1 is £119m(2). This represents an even lower proportion of total repository costs or projected expenditure. There is nothing, therefore, in the financial cost of an RCF, or in particular of Phase 1 of it, which commits Nirex to Sellafield as a repository site.
- 1.4 The grant of planning permission could not, and would not, commit the Secretary of State to grant planning permission for a subsequent repository. A repository development would raise quite different issues which would fall for determination on a planning application for such a development. The Secretary of State would no doubt make that position clear if he were to grant permission for the RCF.
- 1.5 If Nirex were to propose a repository at Sellafield, and to seek to make a safety case to the Environment Agency at an annual post-closure risk to an individual higher than  $10^{-6}$ , it would be for the Environment Agency to decide whether the sunk costs of the RCF or the projected cost of investigating a site elsewhere were relevant to his determination of an authorisation application. The Secretary of State will know, however, that such sunk or projected costs will not cause the Regulator to accept a safety case outside

Government policy or, therefore, to authorise an unsafe repository. The RCF will accordingly not commit the Regulator to any decision on a repository authorisation application.

- 1.6 Second, this is not an Inquiry into a planning application for a repository or into an application for an authorisation to dispose of radioactive waste under the Radioactive Substances Act 1993 ("RSA"). Neither is it an inquiry to determine the safety of a repository at Sellafield or its environmental effects. The safety of a repository is not a matter for the Secretary of State. It would be for the Environment Agency if an authorisation application for waste disposal were made. The environmental effects of a repository would be before the Secretary of State if a planning application for that development were made. He has promised to call an inquiry into any such application.
- 1.7 That leads me to my third fundamental point.
- 1.8 A very substantial amount of time has been spent at this Inquiry, some one half of it, on cross-examination on behalf of the County Council and other Objectors and on evidence-in-chief they have led dealing with the safety issues of a repository. The Inquiry itself was precipitated by the County Council's refusal of planning permission and their belief that the site was, in safety terms, a poor site for a repository. That belief was in its turn based on a report by their consultants, ERM(3). Whether this Inquiry would ever have taken place if the County Council had appreciated that ERM's opinion of a poor site was based on calculations which their own report said should not be relied upon(4), is an interesting, but another, matter.
- 1.9 The Secretary of State will, therefore, have to consider very seriously the relevance of that cross-examination and that evidence to this RCF planning application. He will in particular have to determine the extent to which, if at all, Nirex have to show the potential of the Sellafield site to support a safety case to the satisfaction of the Regulator. I deal with this point in some detail later in these Closing Submissions. It is enough for me to say now that in my submission the Secretary of State should go no further than to determine whether the Regulator would be bound to refuse an RSA authorisation if Nirex were to apply for one in the future. If that submission is sound - indeed unless it is substantially wrong - much of the cases for the County Council and other Objectors is misconceived, and most of the evidence they have led is irrelevant.
- 1.10 I make a fourth fundamental point at the outset of these Submissions.
- 1.11 Nirex do not come to this Inquiry with evidence to support a safety case. They do not have that evidence. Their assessment of post-closure safety of a repository at Sellafield is preliminary and incomplete. They do not have the information which enables them to take this safety assessment to the point necessary for a decision on whether to propose repository development, and would not be able to obtain it from continued investigations from the surface. They need information which they could only obtain from an underground RCF.
- 1.12 My fifth point relates to the question of alternative sites.
- 1.13 This is not an Inquiry into an alternative site for a repository. It cannot be turned into such an inquiry by assuming that there are alternative sites for an RCF wherever there is a potential alternative site for a repository. If and when Nirex decide to propose a repository at Sellafield and to make a planning application for such a development, the Secretary of State will have the opportunity to consider any issues of alternative sites for a repository which he then considers relevant to his determination of that planning application. I say more about this subject of alternative sites later in these Closing Submissions.
- 1.14 Lastly, I would wish clearly to acknowledge the concern that some local people may have, and local authorities on their behalf, about the possibility of a repository at Sellafield. It is an understandable concern: misconceived, but understandable. Their desire to express that concern at this Inquiry, at an early opportunity, is similarly understandable. But most of the time in Part B of this Inquiry has been taken up by the objections of two organisations, Greenpeace and Friends of the Earth, whose convictions are opposed to Government policy for disposal of ILW waste.
- 1.15 I turn next to suggest the principal issues which this Appeal raises. Thereafter I divide my Submissions into two parts - A and B - to follow the pattern of the Inquiry. I finish with a short Section on Conditions covering both Parts and a Conclusion. 1.16 For the avoidance of doubt, whenever I refer in these Closing Submissions to the Sellafield site I mean the Longlands Farm potential repository zone.

## REFERENCES

- (1) PE/NRX/12/S1 Table 4.1
- (2) PE/NRX/12/S1 Table 4.2
- (3) COR/608 p.104
- (4) COR/608 p.20

# **UNITED KINGDOM NIREX LIMITED**

## **Rock Characterisation Facility**

**Longlands Farm, Gosforth, Cumbria**

### **CLOSING SUBMISSIONS OF THE APPELLANT**

#### **2. THE PRINCIPAL ISSUES**

- 2.1 I seek to define at the outset of these Closing Submissions the principal issues relevant to the Secretary of State's determination of this Appeal. In some important instances this requires definition of the extent of the materiality of a particular issue.
- 2.2 In his statement under Rule 6(10) of the Town and Country Planning (Inquiries Procedure) Rules 1992, attached to his letter to Nirex dated the 27 February 1995, the Secretary of State set out 7 substantive matters on which he wished to be informed. As the eighth matter he left any other issue which the Inspector considered relevant to the determination of the appeal. The County Council gave six reasons for its refusal of planning permission. Bringing together those and other principal representations by Objectors enables the identification of 11 principal issues which arise for determination. The Inquiry considered the evidence led by the parties in two parts. Part A dealt with planning policies and the above ground effect of the proposed development. Part B dealt with the broadly scientific evidence. These Closing Submissions consider separately the evidence and submissions led and put under these two Parts, and the suggested principal issues listed below show for convenience the Parts under which I address them hereafter. In terms of the Secretary of State's determination of the issues there is, however, no particular significance either in the distinction between Parts A and B or the heading under which the suggested principal issues are listed. Within those principal issues lie a number of important subsidiary issues which I define when I consider the evidence.
- 2.3 It is accordingly submitted that the following are the principal issues which arise:

#### **PART A**

##### **The Application**

1. The content of the Application following amendments.

##### **The Development Plan**

2. Whether and the extent to which the proposed development accords with the provisions of the statutory or emerging development plan.

##### **Local Amenity**

3. The effect of the development on local amenity.

##### **Landscape Impact**

4. The effect of the development on the landscape and in particular its affect, if any on the Lake District National Park. To a significant degree this issue overlaps the second.

### **Socio-Economic Impact**

5. The effect of the development on the social and economic activity of the area, and whether it has been shown that the development will have an adverse social or economic cost or effect.

### **Highways and Traffic**

6. The impact of the development on the local highway network.

## **PART B**

### **Benefits**

7. The benefits of the development which outweigh such harm as the development may cause.

### **Geology & Hydrogeology**

8. The results available so far from studies and surveys of the geology and hydrogeology of the area and the additional information that might become available only from the RCF.

### **The Preliminary Risk Assessment**

9. Whether Nirex have shown that the Sellafield site has a sufficient potential for an RSA authorisation.

### **Alternative Sites**

10.
  - i. Whether, or the extent to which, the existence of other possible sites for a repository is a consideration material to the determination of this appeal.
  - ii. Whether Nirex have provided sufficient environmental information, either through its Environmental Statement or by evidence given to the Inquiry, to comply with the Town and Country Planning (Environmental Assessment) Regulations 1988 as amended and, to the extent to which it is relevant, EEC Directive 85/337.
  - iii. Whether Nirex's site selection procedure which led to the concentration of further investigations on the Sellafield site as a potential location for a deep waste repository was rational.

### **Conditions**

11. What conditions are necessary to meet justifiable concerns.

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### CLOSING SUBMISSIONS OF THE APPELLANT

#### 3. THE APPLICATION

3.1 The planning application under appeal was submitted on the 29 July 1994 and first amended on the 29 November 1994(1) before it was determined by the County Council on the 20 December 1994. Further amendments(2) were made and accepted by the Inspector at the First Pre-Inquiry Meeting on the 4 July 1995.

3.2 A third set of amendments were deposited on the 25 January 1996.(3) The description was amended to:

	i.	Include details of the height of the underground galleries in response to the County Council's request.(4)
	ii.	Clarification of the note regarding electricity supply on the Services Corridor drawing.
	iii.	Amendment of the start date of the RCF programme.
	iv.	Colour and finishes added to the building drawings in line with Scheme A.
	v.	Clarification of the dimensions of the foreshaft lining.

3.4 A note setting out the application as amended, and a set of amended drawings, have been prepared and placed before the Inquiry.(5)

3.5 The County Council have indicated that they have no objection to the amendments.(6) The Borough Council and Gosforth Parish Council and other parties have had an opportunity to comment on these amendments during the course of the conditions sessions held outside the inquiry.(7)

3.6 Following these amendments the matters that remain in issue between Nirex and the County Council for determination by the Secretary of State relate to the principle of the proposal and to hours of working. Other issues that have been raised and remain for determination include night time noise levels, external finishes of the buildings and the claimed need for a planning obligation to meet highway and socio-economic effects.

3.7 I look at those issues in the remaining Sections of these Closing Submissions.

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REFERENCES

(1)	COR/103, 103a
(2)	COR/116
(3)	COR/119
(4)	Richardson XiC Day 14 am, XX Day 14 am. Richardson letter to Nirex part of COR/119
(5)	NRX/11/13 & COR/102B (revised)
(6)	NRX/11/176
(7)	As noted in COR113, revised January 1996



# **UNITED KINGDOM NIREX LIMITED**

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### **CLOSING SUBMISSIONS OF THE APPELLANT**

#### **4. THE DEVELOPMENT PLAN**

##### **A: THE STRUCTURE PLAN**

###### **Policy 54**

- 4.1 The Development Plan is the recently approved Cumbria and Lake District Joint Structure Plan and the Mid Copeland Local Plan, albeit that some policies of the latter are no longer certified to be in conformity with the former. By contrast the emerging policies of the deposit draft Copeland Local Plan, especially those elements of the policies to which there has been no objection (eg DEV 1 (vi)) are certified to be in conformity with the Structure Plan. The deposit draft Local Plan has now gone through a local plan inquiry and the Local Plan Inspector has reported. Those draft policies which are material to the issues raised at this Inquiry are therefore of great weight.
- 4.2 Mr Balch accepted during his evidence that the decision as to whether permission should be granted for the RCF necessarily centred at the end of the day on whether or not the development complies with the requirements of Policy 54 of the Structure Plan. That policy applies to major developments which have significant affects on the environment. Where they are more national than local in character the four criteria set out in that Policy have to be satisfied.
- 4.3 There is no dispute that the second and third criteria are met by this proposal. They require the proposal to be carried out in such a manner as to cause the least practicable harm and minimise its adverse impacts. It is accepted by the County Council that by reason of the design of the proposal its direct or indirect adverse effects have been minimised and wherever possible practicable steps have been taken to avoid harm. The fourth criterion requires that features of national conservation importance should not be harmed. It is Nirex's case that so far as the fourth criterion is concerned , siting the RCF outside the boundaries of the National Park and beyond any other area of particular landscape significance ensures that it is met. The requirements and objective of Policy 11 have therefore also been complied with so far as practicable.
- 4.4 This conclusion is supported by the evidence of Mrs Wilson which should be preferred as we submit to that of Mr Radmall and Dr Fishwick in terms of the extent and degree of visibility of the proposal from its surroundings and on the appearance and character of the surrounding landscape.
- 4.5 The remaining issue arising under Policy 54 is the first criterion. I address this under Part B of these Closing Submissions.

###### **Sustainability**

- 4.6 Sustainability is the underlying objective of all the Structure Plan policies. The explanatory memorandum of Chapter 2 makes this plain. It was accepted by many of the witnesses in part A that the RCF had an undoubted sustainable purpose. Indeed all the Structure Plan policies are described as intended to ensure a local determination in the interests of the people of Cumbria as a whole on how an on-going balance can be struck between economic growth and the environment through the concept of sustainable development.
- 4.7 The benefits of securing a solution to the long term management of ILW wastes stored at Sellafield, now or in the future, is self evident. It is only disputed by those who doubt or even question Government policy. They included Mrs Perry, Mr Forwood and others who gave evidence such as Ms Skinner and the South Cumbria Citizens.
- 4.8 The principal purpose of the RCF at Sellafield is to assist in the existing and accumulating identification of a safe long term solution to the storage of intermediate level wastes at Sellafield . Much of it is locally generated. The emerging local plan recognises the benefits of finding a solution to the problem of waste accumulation close to its source in that it supports the investigation of the Longlands Farm site via the RCF. The emerging waste local plan is supportive of the general proposition that solutions to waste issues should be found close to their source. A number of witnesses from the Parish Council acknowledged the benefits of doing so.

## **Chapter 2 of the Structure Plan**

- 4.9 Policy 5 was not relied upon in the Grounds of Refusal. That omission is perhaps not so surprising since the Policy refers specifically to the National Parks which will not be directly affected by this development which is sited outside their boundaries. It was agreed during the evidence in Part A that both policy 2 and 5 of the Structure Plan were to be read and interpreted as broad strategic planning objectives for the whole of the County, appearing among the first 10 policies of the Structure Plan in Chapter 2 which is entitled "The strategy..". They were primarily intended to provide a broad strategic framework upon which specific development control policies in the Structure Plan are founded.
- 4.10 Both Mr Richardson and Mr Balch accepted that it was policies 11, 13 and 25 which provided the relevant development control policies with which the development should comply, unless material considerations otherwise indicated.

## **Policy 2**

- 4.11 The requirements of Policy 2 of the Structure Plan are very broad. They seek to protect the County's scenic beauty, natural resources and the quality of its built environment.
- 4.12 Mr Balch concluded that the proposed development was not in conflict with Policy 2 for five reasons.
- (i) The investigatory purpose of the facility was fully justified by reference to Government Policy and also in the context of the existing continuing Nirex science programme.
  - (ii) The impact of the development on the amenity of local residents and visitors would be slight because of the limited number of viewpoints from which the upper-parts of the taller elements of the proposal would actually be seen and in view of the presence of tall structures already present in the landscape nearby, particularly at Sellafield.
  - (iii) The siting of the proposal outside the boundary of the National Park had avoided any direct physical effect on the appearance and character of that National Park.
  - (iv) The proposal would not harm the scenic beauty or natural resources of the locality nor would it harm in particular any special feature of particular national importance.
  - (v) The very purpose of the proposal was wholly in accordance with the strategic objective of sustainability (1)

## **Policies 5 and 11 - National Park Policies**

- 4.13 Policy 5 seeks specially to secure protection of those areas and features of the natural environment which are of specific national or international importance.

- 4.14 Policy 11 is the first policy to be found within Chapter 3 of the Structure Plan, which incorporates the specific policies for development control purposes which are designed to accommodate development within the environment in such a way as does least harm to those interests of acknowledged importance defined in Chapter 2. Policy 11 refers specifically to Landscapes of National Importance.
- 4.15 The County Council have contended that Policy 11, which is concerned with the protection of landscapes of national importance has a direct relevance to this proposal. Although the RCF is sited outside the National Park they contend that the extent and degree of its detrimental effect upon the character and appearance of the National Park amounts to a breach of the policy.
- 4.16 While it was accepted by Mr Balch that the visual impact of any development on its surroundings must be a material consideration, Mr Balch interpreted Policy 11 as having particular relevance to a development physically situated within the National Park when determining whether any development complied with its requirements.
- 4.17 He placed reliance for his interpretation on an appeal decision by the Secretary of State about a proposed wind farm at Kirkby Moor in 1992, which was determined in the context of the earlier Structure Plan policies C3 and C6. The objections against that development rested essentially on its visual impact and its effect on the appearance and character of the site and the surrounding landscape.
- 4.18 In assessing the weight to be given to such considerations in that case the Secretary of State considered it necessary to bear in mind that although the site was close to the National Park and in similar countryside, it was not situated in a nationally designated area of landscape importance. Although the Secretary of State accepted that the development would be readily seen from part of the Park, nevertheless he concluded that it would not directly affect the Park's appearance and character.
- 4.19 In that case he decided that although the appearance of the development would be considered by some people as alien to its rugged and remote moorland setting, any harm caused by its visual impact was outweighed by the national need for alternative cleaner sources of energy. In view of the minimal ecological and other harmful effects likely to be caused in that case it was permitted for 25 years.(2)
- 4.20 By parity of reasoning Mr Balch suggested that no significance should be attached merely to the fact that the development would be visible from the National Park since the area within which the development is situated has no special designation. In the light of the evidence of Mrs Wilson, he concluded that what would be seen of the development would not affect the appearance and character of the National Park in any significant and detrimental way. The extent and degree to which it will be visible would not justify its refusal, especially as the degree of visual impact in this case would be much less than that which was accepted at Kirkby Moor within a county designated landscape, although the RCF would be closer to the boundary of the National Park than the wind farm is.
- 4.21 Thus the Secretary of State's approach to development outside the boundaries of the national park is set out in the Kirkby Moor wind farm decision. This reasoning was necessarily challenged by Mr Richardson who described it as a nonsense(3). Mr Richardson for his part did however accept during cross-examination that there was a distinction to be drawn between a development within and one outside the National Park. Indeed he accepted and agreed that the impact of the RCF on its surroundings would be much less than that on the National Park which had arisen from the construction of the wind farm.
- 4.22 Mr Richardson also acknowledged that in policy terms there was no justification to seek to introduce some form of policy buffer outside of the boundaries of the National Park which protected that area from inappropriate intrusive development(4).
- 4.23 In the event it is submitted that the Secretary of State should approach the merits of this appeal in a way in which it is consistent with the reasoning that he adopted towards the wind farm/windfarm in the Kirkby Moor decision. There is no specific justification for departing from the approach that he adopted in that case. The wording of policy 56 of the adopted Structure Plan does not justify a different approach. That previous appeal decision, however unacceptable to the Friends of the Lake District or the National Park Planning Committee was not challenged in the courts despite the fact that legal advice had been taken in regard to that possibility.(5)
- 4.24 Nor is the decision explicable upon the basis that there was no statutory requirement at that time for such a wind farm development to be subject to an environmental statement.

- 4.25 It is therefore submitted that there is no justification for a more stringent approach to be adopted to this proposal. The Secretary of State is invited to conclude that the extent of the visibility of the proposal, the degree of intrusion it would occasion and the nature of any contrast between the development and its surroundings do not warrant refusal.
- 4.26 Special protection is required to be given to those features and locations which give rise to national park designations including areas defined to be within Section 3 conservation map areas. The evidence before the inquiry given both by Mrs Wilson and by Mr Radmall and Dr Fishwick does not establish any such impact on such features or areas nor could the character and appearance of the National Park be described as significantly harmed by this development in view of the detailed evidence and the limited degree and extent of visibility of it from its surroundings.
- 4.27 Mr Balch accepted that the visual impact of the development on its surroundings should not be ignored just because it was situated outside the National Park. However he contended that the
- (a) nature and extent of the visual impact, the landscape context within which it is seen,
  - (b) the number of people likely to be affected by it and
  - (c) the period of time in which any effect would be felt did not indicate to him such harm as to materially effect the physical appearance of the National Park.
- 4.28 The relative importance of these matters can perhaps be gauged to a degree by reference to the way in which other industrial style developments have been approached elsewhere in the locality adjacent to the national park over the last decade. As an indicator of one end of a spectrum of local opinion Mr Johnson on behalf of the shop stewards of the Calder and Windscale branch(6) accepted that the proposed structures would have some effect visually at close quarters. It was his view that it would be insignificant when seen from within the Lake District National Park. He pointed to the dramatic increase in visitors to the local area which had occurred over the last 15 years and an increasing use of the coast to coast path. He said that any judgement about the visual impact of the RCF should be assessed against the large number of projects which have been permitted at the Sellafield Site over the last 15 years by contrast with which he said the RCF would pale into insignificance. He made reference to the most intrusive open cast mining works which have been permitted over a distance of about 6 to 8 miles (10-13km) between Workington and Keekle during the last decade, which he suggested had a far greater impact on the local landscape and which had since been restored.
- 4.29 It is of course for the Inspectors to assess on their site view the weight to be attached to the conflicting submissions about these issues. Nirex contend that the RCF would occasion a limited visual impact over a very limited area of the surrounding countryside. They submit that the impact would be experienced in the context of existing structures at Sellafield. They further submit that the visibility of the tallest structures would occur intermittently and over only very limited lengths of the local road and footpath system to which the public has access. The extent of its visibility does not harm the scenic beauty of its surroundings in general nor the distinctive features, character and appearance of the national park in particular. The proposal is therefore not inconsistent with the strategic purposes of policies 5 and 11. Indeed no evidence has been given to explain how the character and appearance of the National Park will itself be diminished.

## **Policies 13 and 25**

- 4.30 Chapter 3 of the Structure Plan incorporates the specific policies for development control purposes which are designed to accommodate development within the environment in such a way as does least harm to those interests of acknowledged importance defined in Chapter 2.
- 4.31 Policies 13 and 25 seek to ensure that the impact of any development which has necessarily to be located in the countryside is minimised. Its siting appearance and landscaping are to be in keeping with the local character of the landscape. Wherever possible it is required to enhance it.
- 4.32 Mr Balch in his evidence advised that the terms of Policy 13 could not be directly applied to a development of this sort, which necessarily had to be in the countryside. It did not fall within the terms used in the policy especially in respect to its reference to local infrastructure. He also acknowledged that by its very nature it would not be appropriate to site an RCF immediately adjoining the boundary of an existing settlement. It did not therefore fall within the first limb of the policy.

- 4.33 However it is a development which by its very nature which could not avoid being located in the open countryside. He accepted that Longlands Farm was mainly part of that open countryside although he did draw attention to the proximity of a number of adjoining agricultural farm buildings and also to the Boonwood Garden Centre, the Red Admiral public house and various other tall structures in the neighbourhood.
- 4.34 Paragraph 3.14 of the explanatory memorandum of the Structure Plan specifically recognises that there will be circumstances in which certain developments by their very nature cannot avoid being located in the open countryside. The policy permits such development where the benefits clearly outweigh any environmental costs. This proposal of course is, as Mr Balch observed, similar to mineral workings to which specific reference is made in paragraph 3.14 and thus the proposal accords with the general intent of the policy. Although it accepted that the RCF is not a local infrastructure development, it is designed to determine whether the disposal of the radioactive(7) waste stored at Sellafield could be safely carried out locally, given that 65% arises from activities in the locality. To that extent the development is by its very nature consistent with the terms and intent of the policy's underlying purpose.
- 4.35 Indeed Mr Richardson's admissions in cross-examination add weight to such a conclusion. He accepted:
- i. The facility had to be at the place where the proposed investigations were to be carried out if they were to take place at all at Sellafield(8)
  - ii. The County Council had never argued that it should be sited in a different location if the investigations were to be pursued. Indeed they had permitted the RCF, PRZ and RCM boreholes.
  - iii. There was no alternative to sinking the shafts if the investigation was to proceed.
  - iv. The County Council had from an early stage in the formulation of the proposals agreed to the increased elevation of the platform site from 80m aOD to 84.5m aOD as a means of securing the optimum balance between minimising the inevitable physical impact of the development on the local topography on the one hand and the visual impact of the proposal on the wider landscape on the other.
  - v. All importation and export of spoil could be avoided and the impact of heavy traffic on the local road networks minimised.
- 4.36 He acknowledged that everything that could reasonably be done to avoid harm to the local area had been achieved so as to minimise the impact of the proposals on its surroundings.
- 4.37 The Secretary of State can therefore conclude so far as both Policy 13 and Policy 54 are concerned that their essential objectives and purposes will be secured by this proposal. He should therefore grant planning permission as consistent with the requirements of those policies.

## **Policy 57**

- 4.38 Mr Richardson accepted that Policy 57 was not a specific ground of refusal. He conceded that the RCF neither resulted in nor arose from any proposed reprocessing or disposal of radioactive waste(9), and accepted that the essential purpose of the RCF was to ensure that a safety evaluation of any such disposal proposal could be carried out.

## **B: EXISTING AND EMERGING LOCAL PLAN POLICIES**

- 4.39 The existing Local Plan for Mid Copeland is no longer wholly in general conformity with the approved Structure Plan(10). Nevertheless the emerging Local Plan currently proposes an RCF subject to criteria being satisfied in Policy ENV 33. The emerging plan is therefore supportive in broad terms of the RCF proposal. The policy as formulated in the deposit draft was subject to a number of objections by Nirex. The objections were considered at the local plan inquiry and the Local Plan Inspector has made his recommendations upon them. The Borough Council had already suggested substantial changes to the policy, and its officers have indicated that they intend to recommend to the Members that the Inspector's recommendation that further changes be made should be accepted(11). It is significant that the policy indicated that an RCF could be developed at Longlands Farm in a way which is consistent with essential objectives of the Plan notwithstanding the fact that the site lies outside the settlement boundaries.

- 4.40 Finally Policy DEV 3 of the emerging Local Plan seeks to give effect to the requirements of Policy 25 of the Structure Plan in that it requires the siting , appearance and landscaping of a development to enhance the quality of the existing environment and where appropriate and practicable to be in accordance with the vernacular character of the surroundings. Obviously such objectives must be subject to the practicability of achieving such an objective consistently with safety and the functions of the proposed facility.
- 4.41 Nirex has sought to minimise the impact of the development on its surroundings by cladding the external structures which hide the working parts from view. However it is anticipated that the construction headgear would be unclad until the completion of shaft sinking at the end of Phase 1 of the programme. Whether cladding is acceptable as the most appropriate design approach in the context of the requirements of Policy 25 of the Structure Plan is plainly a matter on which reasonable minds may differ. It is ultimately a matter for the Secretary of State to make a judgement about in the light of any recommendation you felt it necessary to make and whether in the particular circumstances of this case there was a particular reason to overrule the preference of the local planning authority for cladding.
- 4.42 The issue is confined to the external design of the upper sections of the headgear and hopper since Mr Metcalfe made it clear he was not seeking to secure the cladding of the lower structures in some vernacular stone or similar such materials as was content that they should be in the form shown on the drawings.
- 4.43 If the Secretary of State should not find the proposals currently before him in the application drawings acceptable, he is invited to deal with the matter in the way proposed by the County Council by reserving that particular detail for subsequent approval by them. The County Council for their part have agreed a detailed scheme and do not seek any further alteration to the submitted drawings indicating the external design(12).
- 4.44 The Borough Council has sought to make the development accord with the historical character of the area by making apparent and obvious the essential mining character and function of the proposal. Whether this would reduce to the scale and bulk of the largest structures and thereby diminish their visibility is debatable. The disadvantage is the inevitable tendency to draw attention to the moving parts of the structures.(13) To that extent observers may become more aware of the presence of activity of an industrial character in the neighbourhood about which the Parish Council is concerned. One particular advantage of the design of the current proposal is that the undulating character of the local topography prevents awareness of most of the activity on the platform site which will be hidden from public viewpoints.

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## REFERENCES

- (1) Richardson Day 11 am; Metcalfe X by Inspector Day 19 am, XX Day 59 am
- (2) NRX/11/5
- (3) XX Day 14 pm
- (4) XX Day 14 pm
- (5) Balch ReX Day9 am
- (6) Day 20 am
- (7) Folger XX by Hockman Day 26 pm
- (8) Richardson Day 14 am
- (9) Richardson XX Day 14 pm, to Inspector Day 15 pm
- (10) COR/305A
- (11) PE/CBC/3/S1 paras 1.3,5.1
- (12) NRX/11/12
- (13) Richardson X Inspector Day 15 pm, Metcalfe X by Inspector Day 18 pm ReX Day 19 am

# **UNITED KINGDOM NIREX LIMITED**

## **Rock Characterisation Facility**

**Longlands Farm, Gosforth, Cumbria**

### **CLOSING SUBMISSIONS OF THE APPELLANT**

#### **5. LOCAL AMENITY**

- 5.1 Concerns expressed about the possible effect of the RCF construction on local amenity covered a wide range. I deal with each aspect of those concerns.

##### **Detailed Design of the Structures**

- 5.2 Nirex has responded to the concerns expressed by the Borough Council about the proposed external appearance of the headgear, and by the County Council about colour, by reviewing the detailed design of the structures in an attempt to reduce further their visual impact if wherever such a change or changes were considered both practicable and desirable. This would ensure that the requirements of Policy 25 of the Structure Plan and DEV 3 of the emerging local plan were met.
- 5.3 Mr Smith agreed that open headgear was technically possible if that was thought preferable(1) and Mrs Wilson accepted that the external design and appearance of the RCF was a matter which Nirex would be prepared to have reserved for subsequent approval(2). In the event at the informal conditions meetings the County were content for detailed permission to be granted now and for any other structures which might subsequently be proposed to be dealt with under the GDO. Nirex has been willing to discuss the appearance of the buildings(3) and their detailed architectural design which has been thoroughly reviewed. In the circumstances draft Condition 3a ensures that a detailed scheme relating to the design and external appearance of the buildings is in place, if found acceptable to the Secretary of State(4).

##### **Security Fencing**

- 5.4 It was Cllr Gray who first expressed concern about the extent of the security fencing around the site. He said in evidence that he had originally been laughed at locally for his attention to this detail(5) but the matter had recently been raised in the Nirex Liaison Group. In the event his concern has been taken on board and the extent of security fencing has been reduced by about 20% in length. It has been re-routed along the toe of the embankment which forms the south western boundary of the Platform Site(6). There is no basis for a concern about its introduction in other areas since the terms of a permission would not permit its introduction elsewhere than shown without consent.

##### **Security Lighting**

- 5.5 Security lighting (5-20 lux) has always been a matter of concern to the local community. They have been anxious to avoid the creation of an industrial development in this rural setting. In fact the activities on the

site and most parts of the structures will be hidden from most public vantage points. Any spread of lighting into the local area will be minimised : as the EIS originally stated :

*" Light spillage will be kept at a low level , due to low mounting height and low power of the lights..." (7)*

- 5.6 The lighting will be mounted upon 6m high columns spaced at 30m intervals along the security fence. The function of the security lighting is to provide a sufficient level of lighting to enable the CCTV to operate, and to allow security personnel to patrol the site. Lighting will be restricted to the security fence which surrounds the platform site, car park, gate house, and explosives store. The length of the fence lit by security lighting has been reduced by about 20% from that proposed in the planning application(8). At the gatehouse on the access road higher levels of illumination will be required (150 lux)(9).

### **Temporary Lighting (at 100-300 lux)**

- 5.7 Temporary lighting will be mounted on columns up to 20m in height. Its use will be restricted to the site establishment and early stages of the shaft construction phase and will not be permitted after 1900 hours (10). The impact will be limited in duration as most of the surface work will be completed within 12 months(11). All the works requiring such temporary lighting will be completed within a two year period (12). Any impact will be restricted to the period between dusk and 1900 and then only in those periods of the winter evenings when any activity on site required such lighting at such high levels. There is unlikely to be any direct line of sight between the Sides Bungalow curtilage and the site by reason of the trees on the boundary of its curtilage and the intervening topography and vegetation.

### **Operational Lighting**

- 5.8 For the remainder of the life of the development it is operational lighting which may have some effect on local amenities. This will be designed to provide a level of lighting of 20-50 lux which is required to illuminate the surface site for moving vehicles or pedestrians. This is a comparatively low level of lighting. Minimal light spillage into surrounding areas will be ensured(13).

### **The Explosives Store**

- 5.9 This was a matter of concern to Mrs Lowery although not apparently to the residents of Sally Hill who would actually live closer to it. The explosives store is sited so as to ensure that it complies with the requirements of the Stores for Explosives Order 1951(14). Mrs Lowery's Newton Manor Lodge is 430m away from the site of the proposed explosives store, which is twice the minimum distance of 215m required by the Regulations(15). Any other permissible location within the appeal site is likely to place it closer to Sides Lane bungalow than it currently is to Newton Manor Lodge. She acknowledged that the proposed siting appeared to comply with the requirements of the statute, and that Sally Hill was closer. She accepted that her original three reasons for objecting to the proposal were no longer matters about which she need be concerned. (16)

### **Power Supply**

- 5.10 It is not now envisaged that Services Corridor A will be used to accommodate an electricity supply, instead supply for the development will be on the route from Point C as shown on drawing No. 008008D(17). The cables may be overhead or underground(18), although for reasons of cost it is most likely that they will be overhead. Mr Brodie expressed concern about the visual impact of overhead lines in cross examination of Mr Smith. However there is no evidence to indicate that these lines would be more intrusive than the existing power cables supplying adjoining farms with power. Indeed the current scheme utilises the existing provision.

### **Surface Water Drainage**



## *The Existing System*

- 5.11 The intermittently flowing rill and the underground water system and culverts serve to drain the small catchment area around Longlands Farm effectively(19). In his evidence Mr Weston expressed concern about the proposed design to cater for storm water conditions in an area of high rainfall in a location where the fall in the elevation was steep. A detailed note has been submitted to the Inquiry by Mr Smith (20) in response to the Inspector's request for further information about the route of the rill off site.

## *During Construction*

- 5.12 The platform site earthworks have been designed to protect the intermittently flowing rill which lies in the valley. The construction of the platform site which will extend into this valley must necessarily make arrangements for it. Water from the catchment area will be diverted into the valley downstream of the earthworks. Water from the developing Platform Site will be collected in the temporary settlement pond, prior to its discharge into the rill. The temporary structures and the protection measures have been designed in accordance with a storm return period and quality standards agreed with the National Rivers Authority(21).

## *Surface Water Run Off during Operation*

- 5.13 The surface water system on the platform site has been designed to cater for storm events in excess of a 1 in 50 year storm return period. In the unlikely event of a storm event in excess of the storage capacity of the trapezoidal channel, water would not overflow into the rill(22). Run off from the platform site will comply with NRA requirements before discharge to the Newmill Beck(23).

## **Foul and Underground Water**

- 5.14 Questions were raised about the discharge of underground water during the construction of the shafts and also from the galleries. An authorisation from the NRA will be required. An on site sewage treatment plant will discharge effluent by drain to the Sellafield works prior to its discharge to the sea. Underground pumped water will be discharged to the same drain(24) subject to the terms of the NRA authorisation or water conservation order.

## **The Local Aquifer**

- 5.15 Effects on the local groundwater aquifer due to seepage will occur when the shafts are sunk. However the evidence in Part A was that this would have no detectable effect on groundwater supplies lying more than 200m away from the shafts(25). The concerns expressed by Mr Weston about the possibility of effects on properties as far away as 1km are therefore groundless.
- 5.16 The NRA have suggested a condition be imposed so as to require approval by the Local Planning Authority in consultation with the NRA of the method of shaft construction. Such a condition would be unnecessary as it would duplicate other controls(26), such as the power to serve a Conservation Notice.(27)

## **Water Supply**

- 5.17 The RCF water supply will be connected to the existing public water main along the A595(T)(28). North West Water have no objection in principle to the development(29) nor do Cumbria County Council(30) or Copeland Borough Council(31) raise any concerns about water quality, drainage or potable supply.

## **Terrestrial Ecology**

- 5.18 One of the notable features of the evidence given by Dr Bayfield was that it was challenged only by Mr Bailey who had certain minor matters of concern to raise about the natural resources of the site and its surroundings. He raised concerns about fly infestation, woodland management and sought confirmation of

the absence of any tree conservation order or proposed SSSI on the site. The RCF proposal has been designed so that Services Corridor A avoids Quarryflats Wood wildlife site as identified on the Mid Copeland Local Plan proposals map(32).

- 5.19 This aspect of the design was implemented in response to the recommendations made by the Institute of Terrestrial Ecology(33). Dr Bayfield saw quite a lot of advantages in having new woodland and the creation of a more diverse and ecologically interesting habitat for invertebrates, small animals and birds as well as being beneficial for badgers to some extent(34).

## **Badgers**

- 5.20 The proposals incorporate the specific measures to mitigate impact on badgers(35) and thereby ensure that adequate foraging areas will be maintained throughout the life of the development.
- The Services Corridors have been routed so as to avoid the areas of ecological value(36).
  - Crossing tunnels will be provided , particularly across the road between the Platform Site and the spoil disposal area.
  - The main foraging areas would be maintained as short unploughed grassland.
  - The progressive restoration of the spoil disposal area will allow a sufficient area of suitable grassland to be maintained.
  - A grassland corridor is to be maintained around the edge of the spoil disposal area.
  - Changes have been made to the arrangements for spoil disposal to address the Institute of Terrestrial Ecology's concerns about possible impact on badger foraging areas(37).
- 5.21 Mr Short confirmed that badger foraging will not inhibit the re establishment of grass in the restored zones of the spoil disposal area(38). Monitoring arrangements will be implemented to ensure protection of the badgers' habitat and the proposed conditions 19 - 21 will enable the Local Planning Authority to ensure that any necessary measures are implemented and in the most appropriate manner(39). Mr Metcalfe was of the view that the principal threat to badgers was from human beings (badger baiting)(40) ; he considered that the proposals to protect the badger habitat were adequate(41). The fact that the clan has expanded in recent years(42) is an indication that construction activity on the site has not hitherto had a detrimental impact on the badger population.
- 5.22 The County Council(43) and Borough Council(44) and English Nature(45) do not object on grounds of impact on ecology.

## **Noise and Vibration: Baseline and Predicted Conditions**

- 5.23 Nirex has provided information on baseline noise conditions at 10 locations(46), baseline vibration conditions at 2 locations(47), predicted noise levels for the main activities at 7 different locations(48), and vibration levels at sensitive locations(49). The baseline conditions presented in the Environmental Statement are biased towards uncharacteristically low levels; the predicted conditions presented in the Environmental Statement represent a worst case analysis(50).
- 5.24 Other parties have not carried out studies of their own. Copeland alleged that the night time noise climate between 0200-0500 may not have been fully ascertained. When cross-examined Mr Bannon indicated that Copeland were now satisfied that the information supplied was representative of the wide range of noise conditions in the area(51). He confirmed to the inspector that he was changing his evidence in chief and he accepted that the night time typical and night time lowest noise conditions set out in Dr Jackson's Table 6. 1(52) were representative. The parties base their cases on Nirex's ( now unchallenged) data as to baseline conditions, and as to predicted noise levels.

## **Vibration**

- 5.25 Predicted vibration levels at the Red Admiral public house are below the acceptable night time level of 2.8mm/sec. Control of the vibration effects of blasting will be achieved through the imposition of draft conditions 7 and 8(53). Mr Bannon of Copeland Borough Council is content that the suggested conditions

relating to vibration could be met(54). The County Council also agree that any vibration effect is capable of being dealt with by way of condition(55).

## Noise

- 5.26 The County Council accept(56) that any adverse impact arising from noise generated on the site is capable of being dealt with by condition, and they agree the wording of suggested conditions 9 and 10(57). The Borough Council take no point in relation to the proposed condition (no.10) which would allow increased levels of noise to be generated during construction and restoration of the site(58). They are also content with the day time noise levels and periods suggested in the draft conditions (No.9)(59).
- 5.27 The dispute between Copeland and Nirex is limited in extent. Copeland wish to impose a condition prohibiting night time working, or restricting night time noise limits to 35dB(A) LAeq1 hr or 42 LA01 (60). They also wish to impose a condition preventing loading of materials into the concrete batching plant at night. They seek to require concrete to be transferred from the concrete batching plant to the shaft by non vehicular means.
- 5.28 Nirex and the County Council are content that a condition restricting free field night time noise levels to 42 dBLAeq 1 hr or 50LA01 would overcome any harmful affect attributable to noise generated on site.
- 5.29 The imposition of the conditions sought by Copeland could only be justified if they were shown to be necessary to protect the amenity of those living or working in the noise sensitive properties affected. The impact on those properties is capable of being assessed by the use of absolute standards or by the application of the exceedance principle.

## Absolute Standards

- 5.30 Copeland accept that WHO standards adopted by Nirex(61) are appropriate, Mr Bannon said that he was not pointing to any better source of guidance on appropriate day and night time noise levels than the WHO standards(62). He further agreed that his decision to accept a day time level of 50dB(A) was informed by the WHO standard(63). He had no reason to disagree with the WHO advice that an internal level of less than 35dB(A) be achieved in order to ensure the restorative processes of sleep. Mr Bannon also accepts that the guidance in MPG 11(64) is applicable to the construction phase of the proposed development(65). Paragraph 34 of MPG 11 suggests a night time nominal limit of 42 dB LAeq 1hr (free field) at noise sensitive dwellings.

## The Exceedance Principle

- 5.31 BS 4142(66) is the only document in the range of guidance on noise which relies specifically on the exceedance principle(67). The Borough Council argue that BS 4142 is inapplicable in the circumstances of this case(68). They nonetheless seek to rely on the exceedance principle set out in the BS. Dr Jackson accepted that, in generalised terms, the exceedance principle could be applied when assessing the effects of the noise generated by the concrete batching plant, subject to an important proviso, namely that a certain absolute level is achieved(69). There is a cut off point below which the principle does not apply. If the background level is low, the introduction of a noise source greater than 10dB above background will not give rise to complaints as the absolute level is too low. It is for that reason that BS4142 advises that the exceedance method is not applicable when background noise is very low, i.e. below an A weighted sound pressure level of 30dB(70). In considering background noise level one should take an average L90(71).
- 5.32 It is necessary to consider whether the prohibition of night time working can be justified. Mr Bannon placed particular emphasis on the operation of the concrete batching plant at night. Dr Jackson assessed the likely noise impact of the concrete batching operation. Modern concrete batching plants have a typical sound power level of 92dB(A), 14dB(A) quieter than assumed in the initial calculations(72). The results reported at NRX/3/3 show that loading a concrete mixing lorry creates a sound power level of 108dB(A), loading the hoppers creates a sound power level of 102dB(A)(73). Mr Bannon said he had no reason to dispute Dr Jackson's evidence as to the noise levels of modern concrete batching plant(74). Dr Jackson applied a sound power level relating to concrete mixing alone as he assumed that a large lorry would not be used and that it was more likely that concrete would be pumped to the shaft(75).

- 5.33 Mr Bannon accepts that, notwithstanding any argument relating to the addition of 5dB to take account of the intermittent nature of the noise, there is no reason to expect difficulty or complaint if the hoppers are not being fed or if the concrete is not being taken to the shaft by truck(76). It follows that there can be no objection to night time working as such. The dispute turns on the issue of whether it is necessary to prohibit the loading of the hoppers, and the prohibition of movement by truck.
- 5.34 It is important to note that even in the worst case, namely a plant operating with a concrete mixing lorry (which would not apply in the case of this development), the free field LAeq at the two worst affected properties Sides Bungalow and Boonwood Cottages/Red Admiral public house would be less than 35dB (77). It follows that the prohibition of night time working and / or the prohibition of loading and of the use of vehicular transport at night cannot be justified by an argument that WHO limits would otherwise be exceeded.
- 5.35 It would only be appropriate to apply the exceedance principle if the background levels exceeded 30 dB. The night time average L90 level at the two properties (Sides Bungalow and Boonwood Cottages/ Red Admiral public house) most likely to be affected by concrete batching are 27 and 29 dB respectively(78). It follows that the exceedance principle would not provide appropriate guidance.
- 5.36 If it is appropriate to apply absolute standards, they should be the WHO standards. The guidance set out in MPG 11 provides an alternative but complementary figure, in that it provides a free field figure, which is comparable to the WHO standard applicable to internal noise levels. The application of such standards does not necessitate the imposition of conditions prohibiting night time working, or prohibiting loading and unloading activities relating to concrete batching. The application of those standards does not justify a night time noise limit of 35dBLAeq free field. The WHO standard for night time noise relates to an internal level. The comparable free field level is the 42 dB suggested in MPG 11.
- 5.37 The approach agreed by Nirex and the County Council is consistent with the approach pursued in relation to the planning permissions granted for the borehole developments. Mr Bannon accepts that the RCF/RCM borehole consent offers the best guidance for the RCF site, as it is, for all intents and purposes, the same locality(79).
- 5.38 The night time limit imposed in respect of that consent was 43 dB (A) measured 1m away from the facade of any noise sensitive property(80). The only reason that Mr Bannon relied upon in support of his argument that it was appropriate to depart from that approach, was that the RCF development would last for longer than the RCF/RCM borehole programme. To accept Copeland's argument would be to depart from the standards set out by WHO, and by the Government in MPG 11, and from those standards considered acceptable on the same site in respect of the borehole development. Such a departure from guidance and from past practice is not justified on the evidence.
- 5.39 Dr Jackson has explained in NRX/3/7 why he confined his noise measurements to the west side of the A 595(T) and Mrs Lowery accepted that her concern from the passage of HGVs transporting spoil away from the site was misconceived. There are no noise reasons to justify refusal raised by any other party.

## Air Quality

- 5.40 Another area of concern about possible impact on residential amenity was dust clouds and nuisance during site construction and subsequent operations. In the event there was no evidence that there had been any problems at the existing borehole sites and none is expected during the construction of the RCF. The passing reference to the cumulative effects of noise, vibration, dust and traffic in Mr Richardson's evidence, as sources of discernible harm to the rural character of the area, is not supported by the unchallenged evidence of Mr Woodbridge and the evidence of the other Nirex consultants.
- 5.41 This is perhaps not surprising because , even without dust control measures on the surface site, the increase in dust deposition rates caused by the most intense site activity would be less than 10% of the nuisance threshold(81). Mr Woodbridge's analysis indicated that there could be no question of a nuisance occurring as a result of dust deposition(82). Further safeguards would be provided by suggested condition 15(83), if the Secretary of State considered it necessary to impose it. The County Council elected not to cross examine Mr Woodbridge on the basis that a suitably worded condition would meet their concerns (84). The Borough Council does not pursue issues relating to air quality(85).

## **Public Access and Recreation**

- 5.42 There are no public rights of way on the surface site(86). Disruption to rights of way during the establishment of services in the services corridor will be limited. Establishment of an electricity supply in Services Corridor A will take a maximum of four months(87). The total period required for the construction of underground services in Corridor B will be seven months; disruption of rights of way will be for a much shorter period(88).
- 5.43 Longlands Farm is used by the Cumbria Riding Club. BNFL have agreed to lease an alternative field to the riding club(89).
- 5.44 Cumbria County Council(90) and Copeland Borough Council(91) do not object on grounds of impact on public rights of way, or on grounds of impact on recreation.

## **Agricultural**

- 5.45 The impact on agriculture is restricted to the temporary loss of agricultural land, and the temporary disruption caused by the establishment of the service corridors. The loss of land from agricultural production is restricted to a maximum of 24.9 hectares of predominantly Grade 3B land(92), which will be taken out of production for a maximum of twelve years. Only 4.6 hectares of land (required for landscape planting) will be permanently lost to agricultural production(93). Temporary disruption to the agricultural land lying within the service corridors will last for a maximum of 6 months(94). The County Council(95) and the Borough Council(96) do not object on grounds of impact on agriculture. MAFF has no objection to the loss of land for a temporary period(97).

## **Soil Quality**

- 5.46 MAFF, however, raised a number of other concerns(98). Agreement between MAFF and Nirex has been reached on physical characteristics, and soil and land use proposals(99). MAFF have raised a concern relating to planting on soil storage mounds. They fear that damage could be caused by traffic passing over the mounds, and also that there would be pressure for retention of the planting upon completion of the development. The amount of planting on soil storage mounds has been reduced in response to MAFF's concern. Only 15% of the stored topsoil will be planted. The fears can be allayed. Nirex has not applied for and does not seek to retain the trees on the storage mounds on completion of the development(100). Any roots left in the soil can be removed when stone picking takes place(101). It will not be necessary for machines to pass over the soil mounds, as the trees can be removed by a machine standing beside the soil mounds(102).
- 5.47 Cumbria County Council consider the development proposed to be an appropriate compromise between MAFF's concerns on soil quality and the need to have an acceptable landscaping scheme(103). Copeland Borough Council do not object on grounds of impact on soil quality(104).

## **Archaeology**

- 5.48 No statutory consultee (including English Heritage(105)) has raised impact on cultural resources as a reason for objection(106). There are no designated cultural resources within the appeal site(107). The development has been designed in such a way as to ensure that only one of the 18 sites of real or potential archaeological interest identified within or close to the appeal site will be adversely affected by the development (site 15)(108). In relation to site 15 (Rig and Furrow cultivation), it is not that which is found on the surface but that which may lie underneath it which is of interest. If the development were to proceed it would make it more likely that an archaeologist would be able to discover whether there was anything of interest(109). Mr Metcalfe indicated that he agreed with Dr Ralston's views(110).
- 5.49 There will be no emissions into the air which have the potential to affect archaeological features(111). The Gretigate Stone circle was identified by a Mr Stout (a local architect) in about 1960(112). Miss Clare Fell, the leading archaeological personality in the Cumberland and Westmorland Society of that period, visited the site. She told Dr Ralston that she had grave doubts that significant monuments had been present(113). The County Archaeologist concurs with Dr Ralston's view that if the features ever existed there is no

evidence for them now(114). Cumbria County Council have concluded that the proposal is not in conflict with the relevant policies relating to archaeology(115), Copeland Borough Council are of the same opinion(116). The subsequent written submission of Mr Forwood does not raise an new matter which was not dealt with in the evidence of Dr Ralston. The areas which lie outside the surface site will remain undisturbed and were not therefore the subject of any further in depth investigation, as was made clear in the reports prepared by Dr Ralston.

### **Listed Buildings**

5.50 The development will not adversely affect any listed buildings(117). It might be possible to see the tower crane from Sally Hill (Grade II listed). The tower crane will be on site for 11 months(118). The effect of the intervening vegetation is such that, if specific consideration had been given to that issue, no discernible change in visual amenity would have been recorded by Mrs Wilson(119). The County Council and Borough Council(120) raise no objection on grounds of impact on listed buildings.

### **Access and the Transport of Materials to the Site**

5.51 The option of transporting materials by rail has been considered and found to be impractical. A direct rail link was ruled out on grounds of environmental and visual disruption of the level of earthworks required, ecological impact, and the lack of need(121). Mr Hellier of the Borough Council came to a similar view when the matter was discussed at the NLG sub group meeting(122) held on the 1 December 1993. There would be environmental objections to constructing a road link to the railway at Sellafield, and it would be unnecessary as the capacity of the existing road system is sufficient, and as the low volume of traffic, mixed loads, variety of construction materials, and the variety of origins, would make the use of rail inappropriate(123).

5.52 Access to the surface site can be provided directly on to a trunk road. The County Council accept that as the A595(T) is a trunk road there is no need for a condition limiting the movement of HGVs to certain periods of the day(124).

5.53 The impact on local roads other than the A595(T) will not be discernible(125).

5.54 Sides Lane provides emergency access(126) and will be used for a period of about 6 months during installation of services in the service corridors(127).

### **The Woodlands Surrounding the Site**

5.55 The woodlands are owned by BNFL. They have entered into a Section 106 planning obligation by which they have undertaken to manage the woodlands on the appeal site for a period of 15 years, and not to fell any woodlands save those required to be felled by good silvicultural practice, and except for two small areas of woodland which will be replanted. The areas to be replanted under the existing Woodland Management Scheme includes an area to the south of the drive to Newton Manor within the Appeal Site.

### **Ecology**

5.56 Several ponds are situated along the lower reach of Newmill Beck close to the estuary and separated from the beck by sluice gates. The pools are important for Natterjack Toad conservation and are filled from the beck during the breeding season(128). The Natterjack Toad population and its reproduction could be affected if the Newmill Beck were polluted, or if there were substantial change in the volume of flow(129). The Natterjack Toads will be protected by an on site automatic continuous monitoring arrangement which will prevent abnormal or contaminated release off site. Contaminants will be prevented from entering the beck, in accordance with Dr Bayfield's advice(130), and arrangements to co-ordinate any discharges with the downstream sluices will be the subject of conditions on the authorisation from the NRA. English Nature are satisfied that the development will not have a significant impact if such mitigation measures are implemented(132).

## Archaeology

- 5.57 The Greycroft stone circle(133) which lies outside the appeal site will not be affected by the development (134). Mr Forwood's criticisms are therefore not justified.

## Public Services and Residential Accommodation

- 5.58 The impact on accommodation and public services can be accommodated with ease(135), as Mr Richardson agreed for the County Council(136).

## Local Employment

- 5.59 There is no dispute as to the level of employment created by the development, namely 1,690 man years (137). Nirex has drawn up a Model Code of Employee Relations, which includes a requirement that suitable manpower should include local personnel with relevant skills, and that employment opportunities should be advertised locally(138). Nirex have also set up a steering group chaired by the Chairman of the West Cumbria Development Agency. The committee will provide guidance to Nirex as to how it can implement its intention that jobs are filled by local recruits(139). The RCF is highly unlikely to be developed by a person other than Nirex, and it is therefore material to take into account the practices which would be adopted by Nirex, and the substantial benefits which would accrue to the local population.

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## REFERENCES

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- (2) Wilson XX by Hockman, day 4 AM
- (3) Wilson XX by Hockman, day 4 AM
- (4) COR 113 as revised January 1996
- (5) XX Day 22 am
- (6) Smith sup. PoE PE/NRX/1/S1, para.s 2.4 and 2.5 COR/102B
- (7) COR/101 para 2.61
- (8) Smith PE/NRX/1/S1 para.s 2.10- 2.13
- (9) Smith PE/NRX/1 para. 11.11
- (10) Smith PE/NRX/1/S1 para. 2.9, Smith XX by Drabble day 2 am,
- (11) Smith XX by Drabble, day 2 am, and Smith PE/NRX/1 Fig. 14.1
- (12) Smith PE/NRX/1/S1 para. 2.9
- (13) Smith PE/NRX/1 para 11.15
- (14) Smith PE/NRX/1/S1 para 2.19. The 1951 Order can be found at GOV 802.
- (15) Smith XX by Lowery, day 2 AM
- (16) Lowery XX Barratt Day 22 pm
- (17) See COR/113 January 1996, condition 4
- (18) ES (COR 101) para. 2.12, PE/NRX/1 para. 6.7, and NRX/1/4
- (19) NRX/1/3 page 1
- (20) NRX/1/3
- (21) NRX/1/3 page 2
- (22) NRX/1/3 page 2
- (23) Chambers PE/NRX/5 para. 7.38

- (24) Chambers PE/NRX/5 para.s 7.22-7.27, Smith PE/NRX/1 10.14-10.23
- (25) Chambers RX day 6 AM
- (26) DOE Circular 11/95 Annex para 22
- (27) Water Resource Act 1991 s.30
- (28) Chambers PE/NRX/5 para 7.37
- (29) North West Water letter dated 31.08.94, COR 107
- (30) Richardson PE/CCC/1 para. 7.5.4
- (31) Metcalfe PE/CBC/1 para. 1.9 , para. 5.6.1 (c), (d), (j), and (m)
- (32) NRX/11/6
- (33) NRX/4/1
- (34) NRX/14 para 2.6
- (35) Bayfield PoE PE/NRX/4 para. 6.2, and oral XiC, day 6 PM
- (36) The areas of value are identified in NRX/4/1. The measures taken to avoid such areas are referred to in the Environmental Statement, para. 3.5.78, COR 101
- (37) Bayfield Xed by inspector, day 6 PM
- (38) Short Xed by Inspector, day 7 AM
- (39) COR 113, as revised January 1996
- (40) Metcalfe Xed by inspector day 19 AM
- (41) Metcalfe Xed by inspector day 19 AM
- (42) Bayfield X by inspector, day 6 PM
- (43) Richardson PE/CCC/1 para 7.6.6
- (44) Metcalfe PE/CBC/1 para 7.1.9
- (45) Letters dated 23.08.94 and 20.09.94 COR 107
- (46) Jackson PE/NRX/3 Table 6.1, and ES COR 101 Table 3.9.1. Document NRX/3/5 contains an explanation as to how noise levels at Newton Manor/Saddlebank were derived from readings taken at location B on PE/NRX/3 fig. 6.1. Bannon accepts the calculation, Xed by Inspector Day 18AM
- (47) Jackson PE/NRX/3 para. 6.9 and Figure 5.1
- (48) Jackson PE/NRX/3 Table 7.3, ES (COR 101) Table 3.9.3
- (49) Jackson PE/NRX/3 para. 7.27
- (50) Jackson XiC day 5 AM and 10; Dr Jackson described the background noise levels as tending to be biased towards uncharacteristically low levels
- (51) day 18 AM
- (52) Bannon Xed by Inspector, day 18 AM
- (53) COR 113 January 1996
- (54) Bannon XX day 18 AM
- (55) Richardson XX, day 14 PM
- (56) Richardson XX, day 14 PM
- (57) COR 113, January 1996
- (58) Bannon XX day 18 AM
- (59) Bannon XX day 18 AM
- (60) Bannon PE/CBC/2 Section 5
- (61) Environmental Health Criteria 12: Noise, GOV 122; see Jackson PE/NRX/3 para
- (62) Bannon XX day 18, AM
- (63) Bannon XX day 18, AM
- (64) GOV 111
- (65) Bannon PE/CBC/2 para. 1.4



- (66) GOV 902
- (67) Bannon XX day 18 am
- (68) Bannon PE/CBC/2 para. 1.2, confirmed in XX day 18 am
- (69) Jackson XX by Hockman , day 5 pm
- (70) Jackson XX by Hockman PM day 5, BS4142 para. 1 on page 3, GOV 902
- (71) Jackson XX by Hockman PM day 5
- (72) PE/NRX/3/S1 para. 2.2, and NRX/3/3; the initial calculations can be found at Table 7.1 of PE/NRX/3 , where the sound power level for concrete batching is given as 106dB(A)
- (73) Jackson XX by Hockman day 5 am
- (74) Bannon XX day 18, AM
- (75) Jackson XX by Hockman day 5am
- (76) Bannon XX day 18 am
- (77) PE/NRX/3 Table 7.2 is based on sound power level of 106 dB for concrete batching, even if 2dB are added, the levels remain below 35dB
- (78) Table 6.1 PE/NRX/3
- (79) Bannon XX day 18 AM
- (80) COR 201 page 232, condition 23
- (81) Woodbridge PE/NRX/6 para. 9.1
- (82) Woodbridge XXed by Hockman, day 6 PM
- (83) COR 113 January 1996
- (84) Indication by Richard Drabble QC day 6 PM
- (85) Metcalfe PE/CBC/1 para. 1.9
- (86) ES (COR/101) para 3.12.10 & Fig 3.12.1
- (87) Balch PE/NRX/11 para 7.7
- (88) Balch PE/NRX/11 para 7.8
- (89) NRX/11/7
- (90) Richardson PE/CCC/1 para.s 7.2.14 -7.2.16
- (91) Metcalfe PE/CBC/1 para. 5.6.2
- (92) Nirex's consultants' grading has been verified by MAFF, NRX/7/5 para. 3
- (93) Balch PE/NRX/11 Section 6
- (94) Balch PE/NRX/11 para. 6.5
- (95) Richardson PE/CCC/1 para. 7.2.10
- (96) Metcalfe PE/CBC/1 para. 1.9
- (97) MAFF letter 27.10.94 , COR 107
- (98) MAFF letter 27.10.94 , COR 107
- (99) NRX/7/5 para.1
- (100) NRX/7/5 para. 5
- (101) Short Xed by Inspector day 7, AM
- (102) Short XiC day 7 AM, page 16A-D
- (103) Richardson PE/CCC/1 para. 7.2.7
- (104) Metcalfe PE/CBC/1 para. 1.9
- (105) English Heritage's consultation response is included in COR 107
- (106) Ralston PE/NRX/8 para. 7.1, and XiC day 7 AM
- (107) Ralston PE/NRX/8 para. 3.3
- (108) Ralston PE/NRX/8 para. 4.2
- (109) Ralston XiC, day 7 AM

- (110) Metcalfe Xed by Inspector day 19 AM
- (111) Woodbridge PE/NRX/6 para. 7.3
- (112) see copy of paper read by Mr Stout on 15.04.61, annexed to Mr Forwood's written representation dated 28.09.95
- (113) Ralston RX, day 7 AM
- (114) County Archaeologist; NRX/8/9, Dr Ralston NRX/8/7 (see 4.2) and XiC day 7 AM
- (115) Richardson PE/CCC/1, para. 7.2.13
- (116) Metcalfe PE/CBC/1 para. 1.9, and 5.6.2 (f).
- (117) Wilson PE/NRX/2 para. 6..4 (vi)
- (118) Wilson PE/NRX/2 para. 6.17
- (119) Wilson XXed by Hockman, day 4 AM
- (120) Metcalfe PE/CBC/1 para. 5.6.2 (e)
- (121) Environmental Statement (COR 101) para. 2.146, Purcell PE/NRX/9 para.s 3.12-3.14, and XX of Purcell by Hockman day 7 PM
- (122) CCC/1/2 page 40
- (123) Purcell XXed by Hockman, day 7 PM
- (124) concession made by Richard Drabble QC, day 8 AM
- (125) Purcell PE/NRX/9 para. 6.34
- (126) Purcell PE/NRX/9 para. 6.39
- (127) NRX/11/8
- (128) Environmental Statement para. 3.7.28, COR 101
- (129) Bayfield PE/NRX/4 para. 5.4
- (130) Bayfield Xed by the Inspector day 6, PM
- (131) CCC/1/26
- (132) COR 107, letter dated 20.09.94 page 2
- (133) identified as feature 7, on map 16 in COR 701
- (134) Ralston Xed by inspector, day 7 AM, Wilson PE/NRX/2 para. 6.4 (vi)
- (135) Mackay PE/NRX/10 para. 6.11
- (136) PE/CCC/1 para. 7.8.6
- (137) PE/NRX/10 Table 5.3
- (138) PE/NRX/10 Appendix I para's 5.1 and 5.2
- (139) Mackay Xic day 11pm

# **UNITED KINGDOM NIREX LIMITED**

## **Rock Characterisation Facility**

**Longlands Farm, Gosforth, Cumbria**

### **CLOSING SUBMISSIONS OF THE APPELLANT**

#### **6. EFFECT ON CHARACTER AND APPEARANCE OF SURROUNDING LANDSCAPE INCLUDING THE NATIONAL PARK**

6.1 The surface structures and the activities on the surface site are capable of causing visual impact. The impact is limited to visual intrusion. There is no suggestion that the development will cause visual obstruction.

It is necessary to consider the evidence relating to:

- **The nature and quality of the countryside** of the appeal site and surrounding area
- The extent to which **the activities on the site** will be seen from the surrounding countryside
- The extent to which the **structures on the surface site** will be seen from the surrounding countryside
- **The significance** to be attached to any visual intrusion

##### **The Nature and Quality of the Countryside**

6.2 The existing landscape quality of the area surrounding the RCF is not high(1). It does not lie within any designated landscape area. The County Council assessed the appeal site as lying within the main coastal strip(2) and having some of the characteristics of an estate landscape.

6.3 The Nirex baseline study concluded that the Sellafield complex detracts from many views of the site. The general impression is of a rather intensively managed bland landscape. It is mitigated to some extent by areas of deciduous woodland. Mr Radmall accepts the conclusions of this analysis, on the scale upon which it was carried out and for the purpose for which it was intended(3).

6.4 The Sellafield works exert a visual influence over a very wide area as is demonstrated by the Visual Envelope Maps ("VEMs") produced by Mrs Wilson(4) and Mr Radmall(5), and as was accepted by Mr Radmall(6). However little weight should be given to the VEM produced by Mr Radmall and Dr Fishwick which is of very limited assistance. It is based on a combination of the visual envelope of only the two southern cooling towers(7), and it does not take into account the piles, stacks, and other structures, all of which are substantially higher (by 30 or more metres). It therefore underestimates the extent of the visual influence of the structures, as well as overestimating the visual influence of the RCF, because it takes no account of any vegetation or topography at the same detailed resolution as the VEMs.

6.5 The topography of the landscape in the immediate vicinity of the platform site restricts views of the platform site from outside the appeal site. The platform site lies at 84.5m aOD, the woodland immediately abutting the Longlands Farm Buildings lies at an elevation of approximately 91-100m aOD(8), the Longlands Farm Buildings lie at 93-95m aOD(9) and the Red Admiral pPublic hHouse at about 108m aOD(10). When travelling south along the A595(T) one only becomes aware of the Appeal Site as one approaches the access road(11). Travelling further south the road falls away into the Bleng Valley and the appeal site falls out of view(12). The site cannot be seen from Gosforth Village. Travelling North Along the A595(T) the site cannot be seen from the Bleng Valley, and the traveller will only become conscious of the site as he reaches the entrance to it(13), when the RCF would be seen in the context of the Sellafield Works. Passing along the A595(T), the main channel of communications through the area, the local topography and land use features limit awareness of the site except from a limited number of viewpoints for a short distance(14).

6.6 The Lake District National Park lies to the east of the A595(T). The land east of the A595(T), within the National Park, is broadly similar in character to the land to the west of the road(15). The area to the east of the road is not included within the Map prepared under the provisions of Section 3 of the Wildlife and Countryside Act 1981(16), which identifies those areas of landscape the natural beauty of which the Lake District Special Planning Board feels it is particularly important to preserve.

6.7 The area between the western boundary of the Section 3 map area and the western boundary of the National Park consists of an agricultural landscape(17). That area has none of the special characteristics which lead to designation of the Lake District as a National Park, namely moorland, mountains, lakes and tarns, and wild country (18). It is of interest to note that Dr Fishwick did not provide an answer to a series of questions during cross-examination in which it was suggested that this particular area did not possess the qualities which would justify its inclusion within the National Park on the criteria of Landscape Quality alone(19). On the track to Hurlbarrow the broad field pattern to the west breaks down and gives way to the more open moorland to the east(20). The appeal site is seen as separate and distinct from the point at which the typical characteristic Cumbrian Countryside changes into the moorland and fell scene(21).

### **Activities on the Site**

6.8 Because the topography falls away from the A595(T) to the platform site, people travelling on that road or visiting the National Park to the east of the road are unlikely to be aware of the activities taking place on the appeal site. Dr Fishwick agreed that apart from the access road, and the fact that the gatehouse may be seen from one or two viewpoints, activities on the site would not be apparent from the National Park(22). The topography of the local landscape is such that the activities taking place on site are unlikely to have an adverse impact, as they will not be seen from any public vantage points.

### **Visibility of Structures on the Site**

6.9 The VEMs produced by the parties(23) provide an initial guide of the extent of visibility of the structures on the surface site. The County Council's VEMs provide less detailed guidance than those produced by Mrs Wilson. The County's visibility model is based on topography alone(24). Mrs Wilson's figure takes account of the screening effect of large blocks of woodland. The VEMs do not take into account the obstructive effects of small scale features of hedgerows, vegetational features or structures such as walls and buildings(25), and therefore present a "worst case" analysis(26).

6.10 The tallest structure on the site, the tower crane, will only be present for 11 months(27). The other structures are also temporary and will be on site for less than 12 years(28).

6.11 The bulk of the development is visually contained by the topography of the site. Any visual impact caused by the development is limited to that caused by the top of the shaft headgear and the hopper(29).

6.12 The County Council suggested that it was appropriate to consider the visual impact over a radius of about 2km, and made a broad division between viewpoints to the north and south(30). The range of view points within the circumference of the circle comprises only 30% of the circle(31).

6.13 The County Council relied on Mr Radmall's photomontages to illustrate their case. The second revision of the photomontages which illustrate the views from Mr Radmall's viewpoints - 4c, 4d, and 4e - demonstrate the limited extent to which the RCF structures will be seen.

#### *4C*

6.14 The view from the footpath north of Moss Wood (4c) is limited to the south shaft headgear and a small proportion of the north shaft headgear with a glimpse of the hopper. The lower buildings will not be seen.

#### *4D*

6.15 The view from the access track to Tarn How (4d) is limited to one shaft, the top of the winder house, and the hopper. The lower buildings and the conveyor will not be visible.

#### *4E*

6.16 The view from the footpath to the north of Hurlbarrow Farm (4e) is limited to the shafts and the hopper and merges with the background.

6.17 The County Council relied upon the view from Sides Lane. Photomontages 3.10.12 and 3.10.13 in the Environmental Statement(32) do not show the view from Sides Lane itself, which runs between high hedges; this point will have been apparent on the site visit.

6.18 It is clear that the RCF will not be seen from many local viewpoints. I have already dealt with views from the A595(T). From the viewpoint of the Red Admiral public house the highest structures will be set within the immediate topography of the land form between the A595(T) and the farm buildings and partially screened by the existing RCF, RCM and PRZ Boreholes planting(33).

#### *Views from the National Park*

6.19 Dr Fishwick accepted that the activities on the site and the buildings on the platform site, save for the shaft headgear (and possibly the tops of the winder houses) would not be seen from the zone of land lying within the National Park and east of the A595(T)(34).

6.20 He identified a number of locations within the National Park from which he suggested that the RCF would be seen. He accepted that those views would be intermittent and over short lengths of the footpaths(35). The views of the RCF will be obtained against the clutter of Sellafield(36). He further accepted that this part of the National Park was not frequented by large numbers of people(37).

#### *Views of the National Park*

6.21 The only views of the National Park which will include a view of the RCF will be from the south west. These will be limited to views of the tops of the taller structures, but they will be screened in many view points(38). In many views from the south west, such as that from Brownbank, the background is not restricted to the National Park, as the hills in the background lie outside the National Park(39).

#### *Views in the context of Sellafield*

6.22 Mrs Wilson's Figure 6.2(40) demonstrates that in the vast majority of cases the viewer will see both the RCF and Sellafield. The initial indication by the VEM is confirmed by the more detailed analysis conducted by Mrs Wilson in response to the questions put by Mr Drabble(41). The analysis indicates that in all locations suggested by Mr Drabble a 1200 angle of view would encompass both the RCF and at least one Sellafield structure.

### **The Significance of any Visual Intrusion**

6.23 A detailed analysis of the extent to which the RCF can be seen demonstrates that the impact will be limited. The County Council selected a number of viewpoints from which to demonstrate their case that the RCF would

cause unacceptable visual intrusion. The three principal photomontages which supported that analysis have been shown to be defective. The revised photomontages demonstrate the limited area over which, and the limited extent of the structures, which will be seen.

6.24 The viewer would see the RCF in the context of Sellafield. An analysis of these viewpoints demonstrates that, unless the viewer placed the RCF in the centre of a view, and restricted the field of view to an angle of 500 (described as "rather like looking down a cardboard tube" in the appendix relied upon by Mr Radmall(42)) Sellafield would be seen in the same view as the RCF.

6.25 In the event that the scheme proposed by Nirex and accepted by the County Council(43) was not considered appropriate, any limited residual intrusion could be further ameliorated by further detailed design work.

6.26 The fact that the development can be seen from the National Park is not determinative of the issue of whether the development affects the appearance and character of the National Park. It is that principle which the Kirkby Moor appeal decision makes clear. That principle is unaffected by the fact that such a development would now be made subject to an environmental impact assessment. In this case a limited part of the RCF will be seen from various viewpoints in the National Park. However no evidence has been led to explain how that fact thereby detrimentally affects the character of the National Park.

### **Alternative Locations at Sellafield**

6.27 No objector has indicated an alternative to the appeal site for the proposed investigation of the BVG at Sellafield. It follows inevitably therefore that all parties accept that if there is to be an RCF in this location, it must be located outside any existing settlement boundary.(44)

6.28 The only alternative location for the RCF was proposed by Mr Spendlove. He proposed alternative locations for the RCF shafts, alternative schemes for the RCF surface works, and that, initially, only one shaft should be sunk. Dr. Mellor addressed the significant practical and scientific disadvantages of these schemes(45). Mr Spendlove accepted a number of the points made by Dr MellorMellorm(46). Neither the alternative schemes nor the alternative locations were supported by the County and Borough Councils. Although Mr Weston for the Parish Council adopted their merits in support of his case(47) which seeks to minimise the industrialised character of any development, there is no evidence to suggest that such an alternative location or alternative platform height would be any less intrusive from Sides Lane or the B5344 Gosforth to the Seascale Road. Indeed there is every reason to conclude on the evidence before the Inquiry that the impact and effect of such proposals, even if practical, upon the immediate surroundings and local amenity would be greater than the current proposal.

### **Conclusion**

29 It is accordingly submitted in conclusion that there will be no significant adverse effect on the character of the National Park or the countryside that surrounds the appeal site.

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### **REFERENCES**

(1)	PE/NRX/2 paras 4.8, 4.14
(2)	COR 304, para. 3.5 page 32
(3)	Radmall XX Day 16 am
(4)	PE/NRX/2 Figure 6.2
(5)	CCC/2/1 Figure 5a
(6)	Radmall XX day 16 AM
(7)	Fishwick XiC day 17,AM

(8)	Wilson PE/NRX/2/S2 para. 4.2 and drawing 008808 attached to that supplementary proof of evidence.
(9)	Wilson XiC when recalled, day 13 PM
(10)	Wilson XiC when recalled, day 13 PM
(11)	Radmall XX, day 16 AM
(12)	Radmall XX, day 16 AM
(13)	Radmall XX day 16 AM
(14)	Radmall XX day 16 AM
(15)	Radmall XX day 16AM
(16)	Fig 2 COR 309, Lake District Park Local Plan deposit version
(17)	Fishwick XX day 17 PM
(18)	Fishwick XX day 17 PM for evidence as to the special features which gave rise to designation as a National Park, and Fishwick XX day 17 PM for his acceptance that the area concerned does not possess those features.
(19)	Fishwick XX day 17 PM
(20)	Radmall XX day 16 AM
(21)	Radmall XX day 16 AM
(22)	Fishwick XX day 17 PM
(23)	Nirex, COR 101 Figures 3.10.20-3.10.27, and PE/NRX/2 Figure 6.2. Cumbria CC, CCC/2/1 Figs 4a and 5a, and CCC/3/1 Fig 3, 3a, and 3b
(24)	Radmall PE/CCC/2 para. 4.3
(25)	Wilson PE/NRX/2 para.s 6.9 and 6.10, Radmall XX day 16 AM
(26)	Wilson XXed by Drabble Day 13 PM
(27)	Wilson PE/NRX/2 para. 6.17
(28)	Smith PE/NRX/1 Fig. 14.1
(29)	Wilson XX by Drabble (for the second time) day 13 PM
(30)	Radmall XiC day 15 PM
(31)	Wilson RX day 4 AM and Xed by Assistant Inspector day 4 AM
(32)	COR 101
(33)	Radmall XX day 16 AM
(34)	Fishwick XX day 17 PM
(35)	Fishwick XX day 17 PM
(36)	Fishwick XX day 17 PM
(37)	Fishwick Xed by Assistant Inspector day 17 PM
(38)	Wilson PE/NRX/2 para. 7.20
(39)	Radmall XX day 16 AM
(40)	PE/NRX/2
(41)	NRX/2/1
(42)	PE/CCC/2 Appendix B page 2
(43)	COR/113 revised January 1996 Condition 3a
(44)	Balch in ReX Day 11: Richardson Day 14 XX
(45)	PE/NRX/16/S1
(46)	XX Day 62 pm





# **UNITED KINGDOM NIREX LIMITED**

## **Rock Characterisation Facility**

**Longlands Farm, Gosforth, Cumbria**

### **CLOSING SUBMISSIONS OF THE APPELLANT**

#### **7. SOCIO ECONOMIC IMPACT**

##### **Matters in dispute**

7.1 The County Council do not rely in their grounds of refusal on any adverse social or economic impact(1). The Borough Council asserts that a decision to construct a repository at Sellafield would have a deterrent effect on inward investment and tourism, and that such an effect would commence upon construction of the RCF, and that the RCF would therefore have an adverse impact on perception and there would be a consequential deterrence of inward investment(2). A planning obligation to offset the alleged adverse impact(3) is sought. Mr Metcalfe has proposed the types of obligations which Nirex might offer(4). Nirex is required to move its head office to Whitehaven forthwith, to carry out off site research in West Cumbria: make a commitment to local recruitment and training: contribute to West Cumbria Development Fund and provide social housing, the funding of village and other halls and funding of transport infrastructure (improvements to the A595 and consideration of the provision of an air strip).

7.2 Copeland Borough Council and other parties do not dispute Professor Mackay's estimate of 1,690 person years of direct , induced, and indirect employment arising from the development. No party suggests that there would be difficulty in meeting the demands placed on local housing, education and health provision(5). No objector adduces any empirical evidence(6) relating to the effect of the RCF on residential property values(7).

##### **Existing Economic Conditions**

7.3 1994 Cumbrian male wage rates were the highest in the northern region(8), it is Professor Mackay's view that high wage levels at Sellafield have contributed significantly to those relatively high wage levels(9); such stable and high wage/salaried employment brings substantial additional benefits to the community(10).

7.4 The rundown in construction employment at Sellafield has had a particularly severe effect on male unemployment levels(11). Employment levels at Sellafield are predicted to fall over the period to 2010(12). An additional job created is all the more welcome if created against a background of declining employment opportunities(13).

7.5 It is a feature of the local economy that there has been inward investment related to the nuclear industry(14). Mr Metcalfe accepted that without the presence of the nuclear industry the Westlakes Science Park development would not have taken place(15). He further stated that he did not know of any other industry in Cumbria which had induced a beneficial stimulus of this sort(16). Mr Metcalfe regards the Westlakes Science Park as fairly critical in

the long term development or restructuring of the local economy(17). The favourable impact of the Sellafield works on the local economy is also recognised by Copeland BC in its statutory local plans for the area(18).

### The Benefits of the Development

7.6 Professor Mackay concludes that the economic effect of the development would be unambiguously positive. He relies on the employment created, and upon the fact that nuclear industry at Sellafield has resulted in a significant addition to local income and employment over the level which would exist in its absence and that the RCF would also have that same beneficial effect(19).

7.7 The commitment to use local labour when possible is likely to secure significant local employment benefits. Professor Mackay suggested that in practice almost all the jobs which are indirectly created or induced will be filled by local persons(20).

7.8 Mr Metcalfe(21) and the Gosforth Parish Council (22) suggested that any employment benefit attributable to the RCF should be offset against loss of employment opportunities which would be provided by the construction of additional storage facilities at Sellafield. The RCF employment opportunities are additional to those provided by the storage facilities. The stores are to be built in any event, as was accepted by Mr Metcalfe(23).

### The Alleged Detrimental Effect of the Development

7.9 The Borough Council allege that the RCF will have an effect on peoples' perceptions and thereby a detrimental effect on inward investment(24). The Copeland case relies on the following matters which I consider below:

i.	Two instances where applications for planning permission submitted by BNFL have been accompanied by a package of social and economic benefits (THORP, and 1991 storage application) (25)
ii.	Evidence of local opinion(26)
iii.	April 1993 Pidea report on "The Impact of Nuclear Facilities on Local Development"(27)
iv.	"Perceptions of West Cumbria as a Destination for Leisure Travel and Inward Investment" (Interim(28) and final(29) reports)(Newcastle University)
v.	RWMAC/ACSNI report on "Site Selection for Radioactive Waste Disposal Facilities and the Protection of Human Health" March 1995(30)

7.10 The fact that BNFL may have made contributions to local infrastructure and other provision does not provide evidence of adverse impact on perception leading to a change in economic behaviour.

7.11 The 1991 Copeland Matters Survey(31) and the 1992 RAS poll(32)do not relate to the RCF but to a repository. The 1991 survey revealed that 45% of people were completely opposed to the repository, whereas 54% "*either feel that they don't yet know enough to make a decision or feel they could accept it if they can be satisfied on (33) certain issues*" The 1992 Survey revealed that 50% of respondents completely supported or tended to support the repository, with 16% completely opposed, and 20% tending to oppose (but might accept if reassured about certain issues)(34).

7.12 The 1995 North East Markets Survey (Residents) is the most recent opinion survey material before the inquiry. Professor Mackay described that survey as sensibly conducted, representative and recent. He also pointed out that it contained questions related to the RCF(35). 54% of respondents were unconcerned about the proposal to locate an RCF at Longlands Farm.(36)

7.13 Professor Mackay was of the opinion that the survey demonstrated a clear balance of opinion in favour of the nuclear industry(37).and that a clear majority of residents were on balance in favour of the RCF(38). He described the 1995 North East Market Surveys business survey(39) as useless(40) and fit for the waste paper bucket(41). He went on to say that if the survey was to be believed it was highly encouraging for inward investment, as 80% of the companies would consider West Cumbria, notwithstanding the presence of the nuclear industry(42)

7.14 The only survey which refers directly to the effect of the RCF indicates a majority of residents in favour of the proposal. The only survey which relates to inward investment indicates that there is no adverse effect on inward investment.

#### *The Pidea 1993 Report(43)*

7.15 Mr Metcalfe accepts the methodology and subject matter of this report(44), but not the results or the conclusions. He seeks to rely on selective passages in it and then draws his own conclusions.

7.16 He relies on a passage at paragraph 3.15 which refers to a company which had difficulty in recruiting managerial staff. Professor Mackay's evidence on the matter(45) indicates that the presence of Sellafield was not the sole or predominant consideration, with other factors - such as remoteness, lack of alternative employment opportunities, and lack of social facilities - predominating.

7.17 He also relies on the reported views of two agencies who are recorded as saying that the presence of the nuclear industry deterred companies from moving to the area. As is noted in the report, neither agency could provide evidence of this effect(46).

7.18 He also relies on the reference to the West Cumbria Development Agency's awareness of two cases where companies had decided not to locate in West Cumbria because of the presence of Sellafield(47). To place reliance upon the WCDA's reference to the two companies would be unwise in the light of the evidence. It would appear that one of the companies referred to was or may have been Rowntree Mackintosh. The WCDA now state that it cannot be substantiated that Rowntree moved because of the proximity of Sellafield(48). Professor Mackay and a member of his staff spoke to the factory manager of Rowntree Mackintosh on separate occasions(49), and the assertion of the WCDA was specifically refuted(50). Professor Mackay also spoke to the chief executive of the company referred to at paragraph 3.24 of the Pidea report(51), who was quite specific that the presence of Sellafield was not a factor in the relocation of the company(52). The evidence of Professor Mackay on these matters is important in that it indicates that it is not possible to come to a conclusion of adverse impact on investment based on evidence about the perceived reason for the behaviour of certain companies.

The evidence relied upon by the Borough Council and others appears to be based on the particular witness or organisation's perception as to the behaviour of others. In their closing submissions the Borough Council continue to place reliance upon the Rowntree case notwithstanding the detailed and clear evidence of Professor Mackay. The Council's reliance on decisions made by unnamed sea food and brewery companies is based upon evidence introduced by Mr Metcalfe for the first time in Re-examination and unsupported by any documentary evidence. Mr Catlin's reference to the effect of the nuclear industry on the closure of a local school and Mrs Perry's reference to the closure of a dairy and to the effect on local fishermen was equally unsupported by documentary evidence.

7.19 It is important to note that when interviewed for the purposes of the report, the Borough Council saw the presence of BNFL as an advantage when considering the economic development potential of West Cumbria(53). It is also important to note the conclusions of the report, particularly that the presence of nuclear facilities does not have a major impact on inward investment decisions and that other factors, particularly location and accessibility, appear to be much more influential(54).

#### *The Newcastle University Study*

7.20 Mr Metcalfe seeks to use data collected for the purposes of this study, but does not agree with the conclusions of it. He relies on Table 6 of the Interim Report(55). Professor Mackay inferred from this Table that inaccessibility was a more important disadvantage than Sellafield(56). Professor Mackay pointed out that the West Cumbria Development Agency appear to have reached the same conclusion as he did, namely that inaccessibility was the most significant deterrent to inward investment(57). The study is also limited in extent in that it only covers companies that did not choose to come to West Cumbria, it does not cover the companies that did decide to come to West Cumbria(58).

7.21 It is important to note the study's conclusions, namely that Sellafield is not a significant deterrent to inward investment in West Cumbria, that it could be turned into a significant asset, (59) that many inward investors can be

attracted to West Cumbria by the commercial opportunities offered by Sellafield and its technologies(60), and that the vast majority of persons are no less likely to visit West Cumbria because of the presence of BNFL, and some 6% of respondents were more likely to visit the area to see the Sellafield Visitors Centre(61).

*The RWMAC/ACSNI Report(62)*

7.22 The passages of this report relied upon by Mr Metcalfe recommend that consideration be given to the provision of compensation where net detriment arises. No evidence has been called to support the assertion that the RCF will have a net detrimental impact on the local economy.

7.23 The literature review conducted by Piedad(63) indicates that perceptions are not always translated into behaviour; the empirical evidence is to the effect that on balance the impact is positive not negative(64). For the Borough Council and other objectors to make out their case they would need to call evidence to show that the RCF would have an adverse effect on perceptions which, contrary to the experience elsewhere, would be translated into an effect on investment decisions. They have called no such evidence.

7.24 Any argument that increased investment in facilities related to the nuclear industry increases dependency on one dominant employer might have some force if there was evidence to suggest that refusal of planning permission would lead to a similar number of jobs being provided by some less dominant but equally stable employer(65). There is no evidence to suggest this.

7.25 Mr Metcalfe does not appear to rely on any adverse impact on tourism, but does refer to evidence which concerns the issue of the effect of the presence of nuclear facilities on tourism(66). No evidence is relied upon to show that the presence of Sellafield has had an actual impact on tourism. The English Tourist Board (June 1987) research demonstrates that despite the negative effect on perceptions of West Cumbria following the Chernobyl accident, those perceptions did not actually effect the tendency to visit(67).

### **The Balance of Benefits and Detriments**

7.26 The employment benefits of the development are not disputed. These are not restricted to the creation of 1690 person years of employment. Professor Mackay emphasised that the balancing exercise was not as simple as weighing jobs against (any) blight, as such an approach would fail to take into account the economic benefit to be derived by introducing a new area of expertise(68). There is no firm evidence to indicate that the RCF would have an adverse impact on perception or that any adverse impact on perception that might occur would lead to a change in economic behaviour. The balance of the effect is unambiguously positive(69).

### **The Request for a Planning Obligation**

7.27 The suggestion that planning permission should be withheld in the absence of a planning obligation should be considered against local and national policy. As is made plain in policy IMP 1 of the deposit draft Local Plan (as proposed to be changed by Copeland BC)(70), and as endorsed by the Local Plan Inspector(71), the Council would only expect a contribution to be made where there is shown to be a significant adverse social or economic cost or effect. No such cost or effect has been shown to arise, and it follows that no such obligation should be required.

7.28 The further question is whether the planning obligations suggested by the Borough Council are necessary, relevant to the development to be permitted, and reasonable(72).

7.29 Nirex's head office does not need to be moved to enable the development to go ahead. It fails the test of reasonableness. It would in any event be premature for Nirex to move its head office before it has selected a site for a repository.

7.30 Mr Metcalfe indicated that the Borough Council did not require payment of money to them in respect of research and training(73). He suggested that research should take place in Copeland if possible. This goal could be best achieved by discussions in the steering group(74). It would be inappropriate to require such matters to be made subject to a planning obligation.

7.31 There is no evidence to indicate that the West Cumbria Development Fund will still be in existence after 1998. It follows that it would be inappropriate to require funding for an organisation which may not exist(75).

7.32 Mr Metcalfe gave evidence that social housing has nothing to do with employment directly related to the RCF (76). There is no direct evidence that anybody who may be deterred from living in the area may be in need of social housing(77); or that social housing is required to mitigate the impact on people who would otherwise leave the area as a result of the RCF development(78).

7.33 Mr Metcalfe accepts that it is clear that the RCF is not and will not be responsible for the deterioration of local community facilities(79).

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## REFERENCES

(1)	Richardson PE/CCC/1 para. 7.8.12
(2)	Metcalfe PE/CBC/1 para. 5.5.3
(3)	Metcalfe PE/CBC/1 para. 5.5.22
(4)	Metcalfe PE/CBC/1 para.s 5.5.23 - 5.5.31
(5)	PE/NRX/10 table 5.3 and PE/NRX/10/S1 para. 1.3
(6)	Gosforth PC accept they have called no evidence on this matter. Gosforth PC closing submissions para. 6
(7)	Mackay PE/NRX/10/S1 para. 1.4. NRX/10/7 relates to the effect of Sellafield on residential property values, and concludes that any blight effect there may be is not significant sufficient enough to outweigh any beneficial economic impact
(8)	NRX/10/1-3
(9)	Mackay XiC day 11 PM
(10)	Mackay PE/NRX/10 para. 4.10
(11)	Mackay XiC day 11 PM, page 59A, PE/NRX/10 tables 4.5 and 4.6
(12)	Metcalfe PE/CBC/1 Appendix A table 3, and PE/CBC/1/S1 Appendix 1
(13)	Metcalfe XX day 18 PM
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(18)	Mackay PE/NRX/10 para.s 7.9-7.13 (Egremont Local Plan (NRX/10/5) para. 2.2.4 , Mid Copeland Local Plan (COR 305) para.s 2.4 and 2.8)
(19)	Mackay PE/NRX/10 para. 8.6
(20)	Mackay XXed by Hockman day 12AM
(21)	Metcalfe PE/CBC/1/S1 para. 4.0
(22)	XX of Mackay by Wright day 13, AM
(23)	Metcalfe XX day 18 PM
(24)	Metcalfe PE/CBC/1 para. 5.5.3
(25)	Metcalfe PE/CBC/1 para.s 5.5.7 - 5.5.9 Metcalfe PE/CBC/1 para.s 5.5.7 - 5.5.9

(26)	Metcalfe PE/CBC/1 para.s 5.5.10 and 5.5.11, and Copeland Matters Survey 1991 COR 403 and RAS poll August 1992 COR 404; PE/CBC/1 para. 5.5.17, North East Market Surveys (Residents) COR 407, and North East Market Survey (Business) COR 410.
(27)	COR 402
(28)	COR 405
(29)	GOV 406
(30)	GOV 409
(31)	COR 403
(32)	COR 404
(33)	COR 403 Note 7 page 2
(34)	COR 404 para 8.3 page 32
(35)	Mackay RX day 13 PM
(36)	COR 407 page vii
(37)	Mackay XiC day 11 PM
(38)	Mackay RX day 13 PM
(39)	COR 410
(40)	Mackay XiC day 11 PM
(41)	Mackay XX by Hockman day 12
(42)	Mackay XX by Hockman day 11 PM and paragraph 5 of the Conclusions on page 10 of COR 410
(43)	COR 402
(44)	Metcalfe XX day 18 PM
(45)	Mackay PE/NRX/10/S1 para. 3.8, XX by Hockman day 12 AM RX day 13 PM
(46)	COR 402 para. 4.16
(47)	COR 402 para. 4.38
(48)	NRX/10/13
(49)	Mackay XiC day 11 PM Mackay XXed by Hockman, Day 12 AM
(50)	PE/NRX/10 para. 7.21
(51)	COR 402
(52)	Mackay XXed by Hockman day 12 AM
(53)	COR 402 Table 4.3
(54)	COR 402 para. 7.12
(55)	COR 405
(56)	Mackay XX by Hockman day 12 AM Minutes of the Executive Committee of the WCDA 27.05.94 NRX/10/12
(57)	Mackay XX by Hockman day 12 AM
(58)	Mackay RX day 13 PM
(59)	COR 406 para. 2.1.2 page 7
(60)	COR 406 para. 2.1.2
(61)	COR 406 para. 2.2.2 and 2.2.3 page 11
(62)	GOV 409
(63)	COR 409
(64)	Mackay XXed by Hockman Day 12 AM

(65)	Mackay PE/NRX/10 para. 7.5, and the Parker Report on the Windscale Inquiry (NRX/10/4) at para. 14.24 (ii); Mackay PE/NRX/10/S1 para.s 4.1-4.9
(66)	PE/CBC/1 para.s 5.5.12 and 5.5.13
(67)	NRX/10/9 Mackay XX by Hockman Day 12 pm
(68)	Mackay XXed by Hockman day 12 AM
(69)	Mackay PE/NRX/10 para. 8.1
(70)	CBC/1/13
(71)	COR307A para 3.1.11
(72)	see paragraphs B7-B9 of Annex B to Circular 16/91
(73)	Metcalfe XX day 18 PM
(74)	Metcalfe XX day 18 PM
(75)	Metcalfe XX day 18 PM
(76)	Metcalfe XX day 18 PM
(77)	Metcalfe XX day 18 PM
(78)	Metcalfe XX day 18 PM
(79)	Metcalfe XX day 18 PM

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#### 8. HIGHWAYS AND TRAFFIC

8.1 The Borough Council raise two objections on Highways and Traffic:

	i.	The <b>capacity of the A595(T) is inadequate</b> to cater for the traffic likely to be generated by the development(1).
	ii.	Provision should be made to <b>improve the A595(T)</b> on the Gosforth to Nursery Road section so as to provide a 7.3m wide carriageway with a footpath and cycleway(2).
		They do not rely on the level of accidents occurring on this section of the A595(T)(3).

8.2 No objection is raised by the Highways Agency (the highway authority for the A595(T)) or the County Council (4).

#### Capacity

8.3 Mr Purcell estimates the practical capacity of the link element of the road to be 12,000 vpd(5). Mr Metcalfe, who has no traffic engineering qualification, and has not taken advice from highway consultants(6), has not formed his own view as to the practical carrying capacity of the road, though he considered it was reduced by the occasional presence of slow moving vehicles(7). He accepted, however, that Mr Purcell's figure was correct when advancing a capacity related argument in his supplementary proof(8). The Borough Council do not advance an alternative to Mr Purcell's figure.

8.4 Mr Purcell's Figure 6.1(9) indicates the effect of combining RCF generated traffic, borehole traffic, and existing traffic on the A595(T) in the busiest month, multiplied by the NRTF low growth factor. It is based upon taking the highest RCF generated flow in each year (whether it occurs in July or not), and adding it to the peak base flow (the July figure).

8.5 This method presents a worst case analysis and allows for the fact that the programme may change(10). Even with high growth the combined effect of the traffic would not reach the assessed capacity of the road during the life of the RCF(11).

8.6 Mr Metcalfe did not seek to dispute:

- the figures in Mr Purcell's Figure 6.1(12);
- Mr Purcell's calculations relating to traffic generated, either by the RCF or by the existing boreholes; or



- use of a low growth forecast(13).

8.7 He argued, however, that the 12,000 vpd practical capacity would be exceeded by the year 2009. He based this argument on a 1994 AADT for a point south of Calder Bridge of 8,900. The appropriate figure is 8,300. This is explained by Mr Purcell in his points of clarification(14).

8.8 Mr Metcalfe accepted that with a starting point of a 1994 AADT of 8,300, and applying a low growth factor, the traffic flow would be less than 12,000 vpd. It is clear that if a low growth factor is applied to a base figure of 8,900 the flow would be less than 12,000 vpd(15). In any event the stretch of road to which the AADT figures relate lies immediately south of the Calder Bridge traffic signals, and would have a capacity in excess of the 12,000 vpd figure assessed for the rural section of the link(16).

### **Capacity at Calder Bridge**

8.9 Mr Purcell also assessed junction capacity at the relevant junctions. Traffic signal controlled junction capacity was assessed using the OSCADY programme. Mr Metcalfe had no criticism of Mr Purcell's OSCADY analysis of the Calder Bridge junction(17). Mr Purcell told the Inquiry that the results of this analysis demonstrated that the Calder Bridge junction has the capacity to accommodate the flow generated by the RCF in the peak years.(18)

Mr Purcell also assessed junction capacity at the relevant junctions. Traffic signal controlled junction capacity was assessed using the OSCADY programme. Mr Metcalfe had no criticism of Mr Purcell's OSCADY analysis of the Calder Bridge junction(19). Mr Purcell told the Inquiry that the results of this analysis demonstrated that the Calder Bridge junction has the capacity to accommodate the flow generated by the RCF in the peak years.(20)

### **The Blackbeck Roundabout**

8.10 The greatest utilisation of capacity at the Blackbeck roundabout is in the hour commencing 0700. After the Phase 1 construction works the RCF generated traffic would add about 30 cars in the peak hour, thereby making an insignificant addition to the peak flow(21). It follows that no measures need be taken to ensure that the RCF does not create such additional traffic as to cause congestion at this roundabout. If the Secretary of State were to decide otherwise, the working hours of personnel could be altered to overcome that effect(22).

8.11 The Borough Council argued that the control of shift patterns at the RCF would not overcome any congestion because shift patterns at the Sellafield Works might change(23). This concern is groundless. The RCF shift patterns could be changed so as to ensure that they did not coincide with the BNFL shift times, whatever those shift times might be.

8.12 Mr Purcell's unchallenged evidence demonstrates that the link and the junctions have sufficient capacity to accommodate the traffic generated by the development. It is important to note that the maximum traffic generated by the RCF is 275 vpd in each direction. The two way flow figure of 550 vpd is close to the recent reduction of 500 vpd observed at Calder Bridge, and less than the reduction of flow south of Gosforth(24).

### **Cycle and Pedestrian Traffic**

8.13 The aspirations of Gosforth Parish Council to improve facilities for local pedestrians and cyclists on the A 595(T) was not based on a survey of the likely demand.(25) There is no evidence to demonstrate that the proposed development would give rise to such additional demand for the use of bicycles or for pedestrian traffic on the route from the appeal site to Calder Bridge, as to justify the refusal of planning permission in the absence of road improvements.

### **Grampian Condition/Planning Obligation**

8.14 Mr Metcalfe accepted that it would not be appropriate to impose a Grampian type condition to prohibit the implementation of any permission in the absence of road improvements(26). In the absence of evidence to prove the need for such improvements it would not be relevant, necessary or reasonable(27) to require a planning obligation by Nirex to contribute to the road improvements suggested by the Borough Council.

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## REFERENCES

(1)	Metcalfe PE/CBC/1 para.s 5.7.3 - 5.7.6
(2)	Metcalfe PE/CBC/1 para. 4.7
(3)	Metcalfe Xed by inspector, day 19AM
(4)	Purcell PE/NRX/9 para. 7.3, and Appendix A1: Richardson PE/CCC/1 para. 7.7.13
(5)	Purcell PE/NRX/9 para 4.9, XiC dayXiCday 7, 7AM ,p 41.42 XXxx by HockmanHickman Day 7 PM, RX dayRexday 8 AM: Xed by Inspector day 8 AM
(6)	Metcalfe XX day 18 PM
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(12)	Metcalfe XX day 18 PM
(13)	Metcalfe XX day 18 PM
(14)	NRX/9/13
(15)	NRX/9/13 para. 6.6
(16)	NRX/9/13 para. 6.3
(17)	Metcalfe XX day 18 PM
(18)	Purcell RX day 8 AM
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(20)	Purcell RX day 8 AM
(21)	Purcell RX day 8 AM
(22)	Purcell PE/NRX/9 para. 6.13
(23)	Metcalfe PE/CBC/1 para. 4.7
(24)	Purcell RX day 8 AM, page 27
(25)	Bailey Day 19 p to Inspector
(26)	Metcalfe XX day 18 PM
(27)	see paragraphs B7-B9 of Annex B to Circular 16/91

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#### 9. CONCLUSIONS ON PART A

9.1 I conclude on Part A with principal submissions which I invite the Secretary of State to accept.

1.	By its nature the RCF must be sited within the countryside at the location where it is proposed if the proposed investigations are to be carried out into the BVG at Sellafield.
2.	It must necessarily have some physical impact on the character, appearance and amenity of the immediate locality.
3.	The County Council nevertheless find no sustainable objection to the proposal in terms of its environmental effects which cannot be adequately covered by planning conditions, save in respect of its visual effect on the surrounding landscape which includes the Lake District National Park.(1)
4.	Its specific location has been designed to minimise its visual impact upon both the site itself and its immediate surroundings. The County Council acknowledge that harm has been avoided so far as is practicable and the direct and indirect adverse effects have been minimised.(2)
5.	It utilises so far as is practicable the undulating character of the immediate topography and the degree of screening occasioned by adjoining buildings.
6.	Its visibility from public viewpoints in the locality will be intermittent and over short lengths only.
7.	It will not have any significant or detrimental effect on the character or appearance of the National Park.
8.	It is in general accordance with the provisions of the approved Structure Plan (Policy 54(1) apart, which I address later) and the deposit draft Local Plan.
9.	It will not have an adverse socio-economic effect on the area. The balance of the effect is unambiguously positive.
10.	There is no sustainable objection on Highways and Traffic grounds.

9.2 Some temporary environmental effect is unavoidable but has been minimised to a level where its is acceptable and not substantial.

9.3 The question is whether benefits would be obtained by the RCF which, together with its positive socio economic effect, outweigh those limited environmental effects. I turn to deal with that issue under Part B of these Closing Submissions.

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#### REFERENCES

(1)	Richardson XX Day 14 pm
(2)	Richardson XX Day 14 am

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#### **10. NATIONAL RADIOACTIVE WASTE MANAGEMENT POLICY**

- 10.1 I put National Radioactive Waste Management Policy into a separate section of its own, but in the event there is little to say. At the time they refused the RCF planning application the County Council displayed concern about what they believed to be the uncertainty in national nuclear policy.(1) In the light of the two 1995 White Papers there cannot now be said to be uncertainty, and the County Council accept that.(2)
- 10.2 It is the Nirex case that their RFC proposal sits within Government policy and is consistent with it.(3) That, it is submitted, is plainly right, and no one suggests that it is not, except Friends of the Earth. That does not mean that it is Government policy that planning permission should be granted for the development. Of course it is not. This planning application is to be determined on its merits in accordance with law. But it continues to be Government policy to favour deep disposal of ILW, and Nirex have a clear remit from Government to identify a suitable deep disposal site.(4) The purpose of the RCF is to provide the information which Nirex need to comply with that remit.
- 10.3 Friends of the Earth's argument is that the RCF proposal is not consistent with Government policy, because that policy requires decisions to be supported by the best scientific information and, for the five bullet-pointed reasons given in the evidence of Drs. Green and Western,(5) Nirex's evidence falls short of that requirement. The substance of that argument depends on the Secretary of State's view of that evidence - a question I do not address at this stage. If it has substance, it does not go to the proposal for the RCF but to the current evidence in support of it.
- 10.4 Government policy relating to the disposal of radioactive waste is set out in the July 1995 White Paper(6). Those bodies having regulatory responsibilities under the Radioactive Substances Act 1993 have issued draft guidance for consultation on the principles and requirements against which any application for authorisation to dispose of wastes would be assessed.(7) The effect of these matters is that a risk limit or constraint should not be set as the criterion for determining the acceptability of a disposal facility, but a risk target should be used as an objective in the design process. This should be a risk target of 10<sup>-6</sup> a year of an individual developing either a fatal cancer or a serious hereditary defect. As the Regulator has pointed out(8), such a level of risk is well below that implied by the natural background radiation in the United Kingdom, which varies from about 1 in 10,000 per year to more than 1 in 1,000 per year. If the estimated risks are below this target and best practicable means have been adopted, no further reductions in risk should be sought. Calculated collective dose is not a primary consideration. Good engineering practice and good science will need to be demonstrated.

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## REFERENCES

- (1) e.g. COR/104 p.47 par 5.2.11
- (2) PE/CCC/1 paras 9.2.8, 10.5
- (3) PE/NRX/12 para 5.27
- (4) GOV/208 para 101
- (5) PE/FOE/1 para 10.4, POE/FOE/1/S1 para 1.7
- (6) GOV 208, see particularly paragraphs 75 and 78
- (7) HMP/1/1
- (8) GOV/302 paragraph 6.20

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#### 11. BENEFITS

##### The Development Plan and the Secretary of State's Rule 6 Statement

11.1 Policy 54 of the Joint Structure Plan(1) provides that:

*"Major Developments which are more national than local in character and have significant environmental effects will only be permitted where:*

*i. the sum of national, regional and local benefits is shown to clearly outweigh any harm or risks to the local or wider environment, ...."*

Two passages in the Explanatory Memorandum, at paragraph 4.61, are of note:

*"There can be no hard or fast rules as to how the importance of a major development and its consequences for the environment should be balanced."*

*"... the developer will need to demonstrate that there is an overriding national or regional reason for the development .." (my emphasis)*

11.2 Policy ENV33 of the deposit draft Copeland Local Plan(2) requires, as one of the criteria to be satisfied before planning permission should be granted for the RCF, that the proposal should be -

*"... justified in relation to the need to establish the geology and groundwater flows in the vicinity of the proposed repository site .."*

This element of the criterion was not the subject of objection nor proposed for modification by the Local Plan Inspector(3), and is recommended by Officers for acceptance by the Council.(4) It should accordingly be given the greatest weight.

11.3 One of the matters on which the Secretary of State said in his Rule 6(10) letter that he wished to be informed was -

*" ... the benefits to be gained from obtaining (the additional information that might become available from the RCF), if any, weighed against the possible impact the RCF might have on the site and the surrounding area."*

- 11.4 In the light of these relevant provisions of the approved and emerging Development Plan, and of this requirement by the Secretary of State, the first issue that arises is - What exactly is Nirex required to show, and in what circumstances? The issue arises because:
- 11.4.1 Policy 54 is predicated on the occurrence of "significant" environmental effects, but Policy ENV33 is not.
  - 11.4.2 Policy 54 requires the sum of benefits to clearly outweigh any harm. Policy ENV33 requires justification in relation to need. But the Secretary of State speaks only of weighing benefits against impact.
  - 11.4.3 Policy 54 and the Secretary of State speak of benefits: Policy ENV33 speaks of need.
  - 11.4.4 The matter identified in the Secretary of State's Rule 6 Statement cannot be a material consideration overriding the Structure Plan.
- 11.5 I frame my submissions in answer to this question in reliance on four propositions:
- 11.5.1 The proposal is to be determined in accordance with the Development Plan unless material considerations indicate otherwise.
  - 11.5.2 I do not suggest, and it is not suggested by others, that there is any material consideration which indicates that the proposal should not be determined in accordance with Policy 54, only recently approved by the County Council.
  - 11.5.3 The deposit draft Local Plan is necessarily, and has been certified by the County Council as, in general conformity with the Structure Plan.
  - 11.5.4 It must be presumed that the Secretary of State's Rule 6(10) or letter was written in the light of the draft of Policy 54 and intended to accord with it, or at least not to differ from it.
- 11.6 My submission is accordingly that it is for Nirex to show that, if and to the extent that the RCF would have significant environmental effects, the benefits to be obtained from the development would clearly outweigh those effects. This would be the "*reason*" for the development Nirex must demonstrate and the "*need*" they must justify.
- 11.7 But I stress, in my submission rightly, that the strength of the benefits to be shown is related to the proven extent of the environmental effects or harm of the development. In short, the less the harm the less the requisite benefits. This is the essence of balance rightly explicit in the Secretary of State's Rule 6(10) Statement.

## **The Benefits**

- 11.8 I have already submitted in Part A of these Closing Submissions that the development would have a positive socio-economic benefit. That should be placed in the scales in weighing benefits against harm. But it is a consequence of the development, not the purpose of it.
- 11.9 The purpose of the RCF is to obtain information that could not be provided by further investigations from the surface to resolve existing uncertainties which currently limit confidence in the assessment of post closure safety performance needed to enable a decision to be made on whether or not Nirex should propose development of a repository at Sellafield.(5) Obtaining that information is the principal, though not the sole, benefit of the RCF. The evidence for Nirex spells out in detail exactly what those uncertainties are and what information is needed to resolve them.(6) No useful purpose is served by my repeating it or attempting to summarise it.
- 11.10 I draw out, however, the importance of the two key decision points identified by Dr. Holmes(7), the first a decision by Nirex to propose a repository leading to a planning application and an RSA authorisation application at about the same time, and the second much later decision by the Regulator to grant a full authorisation to start waste disposal. Dr. Hooper describes the two categories of information needed for those decisions(8). He explains how the factors that relate to the first category are important "*in determining the suitability of the site as a location for a repository*"(9), but the factors that relate to the second -after the Regulator has reported no impediment to the eventual grant of an authorisation and after the grant of planning permission for a repository - "*are not likely to determine the basic suitability of the site*" for this purpose.(10) Thus it is the information in the first category which is crucial to a decision whether to propose a repository.



11.11 That first category relates in short to Nirex's -

*".. predictions of groundwater flow and dilution, the potential for natural and induced changes to create significant new pathways for groundwater flow, and repository design."*

On the first decision point, and from the perspective of post-closure safety of a repository, Nirex must have confidence on those matters.(11) They must judge the prospective post-closure safety performance of a repository in the Sellafield BVG to be acceptable and repository construction to be safe at an acceptable cost.(12)

11.12 Without the information to provide this confidence a satisfactory post-closure safety assessment could not be put to the Regulator. Without such an assessment he could not report to the Secretary of State, on an application for planning permission for a repository, that he saw no impediment to the eventual grant of an RSA authorisation.(13) Without such a report planning permission would not be granted. Hence, as Mr. Folger has said, Nirex would need to be confident before making a repository proposal that the Regulator would foresee no impediment to the eventual grant of RSA authorisation.(14)

11.13 In the result, without the RCF and the information it would provide a decision could not be made whether to propose a repository at Sellafield.

11.14 The Inspector who determined the BH 8 and 9 appeals in February 1993 considered -(15)

*"... it to be in the national interest to pursue the geological investigations at this site to the extent that its is necessary to either rule it out or to verify that a cogent safety case can be provided."*

I submit that the same consideration applies to the present appeal with no less, and with the clearer view of the site's promise after four further years of investigation arguably greater, force. Government policy requires the disposal of ILW. Government policy endorses investigation of the Sellafield site for a deep repository, subject to the grant of necessary planning permission. The benefits to be obtained are of national significance.

## **Potential of Sellafield Site**

11.15 Nirex has the clear view that, notwithstanding the uncertainties which currently prevent a confident post closure safety assessment, Sellafield continues to hold "good promise" as a potentially suitable location for the repository. This view they published well before the Inquiry.(16) Evidence to the Inquiry carries forward that view.(17) It is, of course, for this reason that Nirex are investigating the site in such detail and wish to carry forward those investigations into an RCF.

11.16 I hope - I invite you to report - that you formed a high opinion of the ability of the scientists employed by Nirex who gave evidence - Drs. Holmes, Chaplow, Hooper and Mellor. But behind their work, their evidence and their expressed views lies a team of consultants and contractors of undoubted national and international standing. Dr. Holmes listed the principal ones in his supplementary proof(18) - AEA Technology, BGS, Entec Hydrotechnica, GeoScience, Sir Alexander Gibb & Partners, Golder Associates, KSW Deep Exploration Group and Wimpey Environmental. The Secretary of State will attach the greatest weight to the combined expertise of Nirex's scientists and consultants. Whilst Objectors have drawn attention, frequently to comments in the Royal Society Study Group Report which they argue as unfavourable to Nirex, the Secretary of State will remember the many high commendations of ability and quality which the Royal Society Study Group made of Nirex and its work.(19)

11.17 Professor O'Nions gives his support to Nirex's view. Thus:(20)

*"... the results available so far for the Sellafield site show that it has the potential to host a repository with an appropriate safety performance and sufficient potential for development of the RCF to be justified in scientific terms."*

In oral amplification of that evidence-in-chief he expressly endorsed Nirex's view of 'good promise'.(21) He is a most distinguished geologist, independent of Nirex, a Fellow of the Royal Society and a member of its Council, and a member with three other distinguished scientists of Nirex's Review Panel. The Secretary of State will attach the greatest weight to Professor O'Nions' opinion when he comes to balance

it against the many other and varied adverse scientific views expressed to him through this Inquiry on behalf of the County Council, Greenpeace and Friends of the Earth. He will not, in my submission, take the serious step of rejecting it unless driven to do so by what he would need to be satisfied was the overriding value of those other views.

- 11.18 Whilst neither the Royal Society Study Group, nor RWMAC takes a position on the potential of the Sellafield site for a repository - the Royal Society Study Group "*retain an open mind*"(22) (which is, importantly in view of their knowledge of Nirex's investigations, not adverse) - the Secretary of State should take serious note that each of them supports the RCF as, respectively -

*"... an essential component of the Nirex programme. Its construction should begin as soon as practicable"*(23) and

*"... as an integral, necessary part of the overall science programme required to establish the post-closure safety case for the repository ahead of construction."*(24)

### **What Nirex must Prove**

- 11.19 I have, therefore, no hesitation in inviting the Secretary of State to be satisfied on the evidence that the Sellafield site does hold this good promise. But he will nevertheless need to determine what criterion, if any, Nirex must satisfy in order to succeed on this appeal, apart from - or it may be within - the one established by Policy 54 of the Structure Plan which I have identified above. I have not so far at this Inquiry suggested what that might be.
- 11.20 The County Council's sixth Reason for Refusal(25) is that they were not satisfied that the PRZ holds "sufficient promise" to justify the RCF contrary to specifically identified policies of the Structure Plan. That might be said to approach, though not closely enough, the right question - which I venture to suggest in a moment - though it raises the vexed question of what "sufficient" means.
- 11.21 The evidence for the County Council, however, quietly - but manifestly - crept away from this language. Mr. Hetherington posed a variety of different tests - a reasonable prospect of satisfying Policy 57(1)(26), a robust prospect of making a safety case,(27) a convincing prospect of the site achieving a safety case,(28) and whether there were significant doubts that a safety case at 10-6 would be achieved.(29) In the event he firmly came down on this last test.(30) Whatever it is and means, it is not the 6th Reason for Refusal. Mr. Richardson confirmed that the Secretary of State was invited to consider the appeal in the terms enunciated by Mr. Hetherington. The Council, he said, thought there was a significant doubt and hence they were looking for "*very robust evidence*" that a safety case can be made.(31)
- 11.22 In his Report to the County Council's December 1994 meeting at which they resolved to refuse planning permission the Director of Economy and Environment put the relevant point differently. Nirex(32) -

*"... needs to demonstrate to the satisfaction of the County Council .. that there is a reasonable prospect, as far as can be seen at this stage, of making a safety case at this particular site .."*

It is for doubt and question whether this language was intended to have the same meaning as that used by Mr. Richardson in his letter of the 24 October 1994 to Nirex(33) -

*"..The list .... is directed at the Council being satisfied that the site does indeed 'show promise' - or to put it in the negative - that there is no overwhelming evidence to date that would appear to rule out the Sellafield area as a repository location, thereby removing the justification for the RCF development." (my emphasis)*

- 11.23 Greenpeace argue the application of Article 6 of the Euratom Directive(34) to this RCF application.
- 11.24 Where does all this lead to in terms of the right test, in law and policy, for the Secretary of State to apply?
- 11.25 In defining that test five interrelated problems have to be confronted and resolved:
- i. This is not a planning application for a repository.
  - ii. The Euratom Directive does not apply to this application.

- iii. Nirex are not in a position, and do not pretend to be near the position, where they could produce a safety case which would satisfy the Regulator on an RSA authorisation application. Hence the need for an RCF.
- iv. If there were before the Secretary of State for his determination a planning application for a repository, it is likely, if not certain, that he would not involve himself at all with the question whether Nirex could make a safety case to the Regulator's satisfaction, save to dismiss the application if he were satisfied that the Regulator would be bound to refuse an authorisation.
- v. Since this is not a planning application for a repository and there is no authorisation application before the Regulator, could the Secretary of State pose himself any different and more stringent test on Nirex than if it were such a planning application?
- vi. At this Inquiry the Secretary of State has no help from HMIP on any aspect of the potential of Nirex to make a safety case. Without that help he will consider very carefully how far he can sensibly go into that question. This tribunal, with two - albeit experienced - solicitor Inspectors, and even with an experienced geologist as an assessor, cannot supply the expertise which the Regulator will have when he comes to determine an authorisation application, with experienced contractors behind and advising him and after considering Nirex's safety case for perhaps years.

11.26 I would like to say something more about the third of these problems. The interface between planning and environmental pollution control is still less than wholly clear, even after PPG23 and the judgment of the Court of Appeal in Gateshead MBC v Secretary of State [1995] JPL 432. PPG23, moreover, "*does not cover radioactive substances*", though its advice "*on the non-duplication of planning and regulatory functions applies equally well to radioactive waste management*".(35)

11.27 The Gateshead Case is not on all fours with the present, because the developer had made both a planning application and an application for a pollution control authorisation. Nevertheless the clear statement by the Court of Appeal must afford the strongest guidance to the Secretary of State of the manner in which he must determine this RCF application in the face of the objections by the County Council and others. The Court said:(36)

*"If it had become clear at the inquiry that some of the discharges were bound to be unacceptable so that a refusal by HMIP to grant an authorisation would be the only proper course, the Secretary of State following his own express policy should have refused planning permission."* (my emphasis)

11.28 The Secretary of State's policy is now in PPG23 which acknowledged the Gateshead judgment.(37) Two particular passages in that PPG enunciate clear relevant policy:

*"Planning authorities ... should not seek to substitute their own judgement on pollution control issues for that of the bodies with the relevant expertise and the statutory responsibility for that control."*(38)

*"It is not the role of the planning authority to undertake detailed risk assessment of releases into the environment ...; planning authorities should not seek to substitute their own interpretation of such risk assessment for that of the relevant authority."*(39)

11.29 If the jurisdiction of a planning authority is so limited by law and policy where the development under planning application needs pollution or radioactive substances control authorisation, it must be at least no less limited, and I submit if anything even more limited, where the development under planning application does not need RSA authorisation, but has as its purpose the investigation of the suitability of the site for a use which would need such authorisation. Otherwise a planning authority could not only intervene in an area of control given by legislation to another authority - here the Regulator, and anticipate his decision, but could deprive the developer of the opportunity of making out his case to the Regulator.

11.30 This last point could be of particular relevance and importance in this case. The RCF, with continuing investigations from the surface, would provide Nirex with a very substantial amount of information which they currently do not have. Many of the criticisms made by Objectors might - at least, Nirex would say,

would - be satisfied by this further information. This information could lead to further, more confident, and more comprehensive post-closure safety assessments. An adverse decision on this RCF planning application would deny Nirex the opportunity to gain that information and make those assessments.

- 11.31 For those reasons I submit that the Secretary of State's consideration of the potentiality of the Sellafield site should go no further than to determine whether the Regulator would be bound to refuse an RSA authorisation if Nirex were to apply for one in the future.
- 11.32 There is no support in law or policy for relaxing the language of this test - for example, the Regulator would be likely to refuse, or there are significant doubts that he would grant, an authorisation; or there must be a reasonable prospect that he would. The County Council's formal argument of a want of sufficiency of promise must be construed within this test, or be rejected. Mr. Guy Richardson, without overtly applying his mind to Gateshead or PPG23, got it about right, though in other language, when he put the question as whether there is "*overwhelming evidence to date that would appear to rule out the Sellafield area as a repository location*".(40)

### **Relevance of Risk Performance above the 10-6 Target**

- 11.33 As well as arguing that the Sellafield site does not have the potential for a safety case - in the varying language I have canvassed - the County Council and other Objectors also argue that planning permission for the RCF should be refused because -
- i. Other sites are known to exist with a potential to achieve a risk performance lower than the 10-6 target.
  - ii. Nirex may be able to make a safety case to the Regulator at a risk above 10-6 but still consistent with HMIP draft Guidance(41) and Government policy(42) on the basis of a disproportionate cost in achieving a lower risk.
- 11.34 Nirex have made it clear that they have submitted the RCF application in the expectation of meeting the 10-6 target(43) and that they have a limited knowledge of the BUSC sites on which these arguments are based. But those points go to the facts. My submission is that the Secretary of State can attach little, if any, weight to those arguments - for these reasons:
- i. It is for the Regulator to decide on the information before him whether a safety case based on a higher risk than 10-6 would be acceptable to him in the light of Government policy and his Guidance.
  - ii. It is not Government policy nor HMIP guidance that an authorisation application which is consistent with a risk target of 10-6 should be refused because another site has, or might have, the potential for a lower risk.

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### REFERENCES

- (1) COR/303a p.52
- (2) PE/CBC/3 para 5.4
- (3) CBC/3/2 p. 20
- (4) PE/CBC/3/S1 paras 1.3, 5.1
- (5) PE/NRX/14 para 6.83.
- (6) PE/NRX/13 paras 6.6-6.24. PE/NRX/14 paras 6.83-6.88, 7.31-7.33, 8.17-8.18. PE/NRX/15 Section 6. PE/NRX/16 Sections 4 and 5.
- (7) PE/NRX/13 para 6.21
- (8) PE/NRX/15 paras 6.5 & 6.6.
- (9) PE/NRX/15 para 6.5
- (10) PE/NRX/15 para 6.7

- (11) PE/NRX/15 para 6.5
- (12) PE/NRX/12 para 7.8
- (13) HMP1/1 para 4.11
- (14) PE/NRX/12 para 7.8
- (15) COR/201 p.358 para 9.5
- (16) e.g. COR/505 pp.2 & 40; Statement of Case para 8.18.
- (17) PE/NRX/15 paras 2.1, 3.4, 5.2, 5.46. PE/NRX/15/S1 para 2.4(i). PE/NRX/13 para 3.3. PE/NRX/13/S1 paras 1.4, 2.2, 3.11.
- (18) PE/NRX/13/S1 Table 4.1
- (19) COR/605 Section 1.9 p.9, and also at pp 85, 102, 105/106, 110, 120, 125, 135.
- (20) PE/NRX/17 para 6.4
- (21) Day 39 pm
- (22) COR/605 p.11
- (23) COR/605 pp 6/7
- (24) GOV/407 para 4.11 p.14
- (25) COR/106
- (26) PE/CCC/7 para 5.12
- (27) PE/CCC/7/S1 para 6.4 1st bullet point
- (28) Day 44 XX am
- (29) PE/CCC/7S1 para 3.11 4th bullet point
- (30) Day 44 XX am
- (31) Day 45 XX am
- (32) COR/104 p. 52
- (33) COR/104 p. 133
- (34) 80/836/EURATOM as amended by 84/467/EURATOM
- (35) GOV/107 para 1.6
- (36) [1995] JPL at pp 439/440
- (37) para 1.3
- (38) para 1.34
- (39) para 3.19
- (40) COR/104 p 133
- (41) HIMP1/1 para 6.9
- (42) GOV/208 para 78
- (43) PE/NRX/12/S1 para 6.23

# UNITED KINGDOM NIREX LIMITED

## Rock Characterisation Facility

Longlands Farm, Gosforth, Cumbria

### CLOSING SUBMISSIONS OF THE APPELLANT

## 12. GEOLOGY AND HYDROGEOLOGY OF THE SITE

12.1 The Secretary of State wishes to be informed of the results available so far from studies and surveys of the geology and hydrogeology of the area of the proposed RCF. I remind the Inspector of the material context of this subject.

12.2 It lies ultimately in Nirex's disposal concept of a multi-barrier containment system.(1) Vaults would be excavated at depth in a stable geological setting - the natural barrier. Wastes, packaged in steel or concrete containers, which constitute the engineered physical barrier, would be placed in the vaults which would then be backfilled with a cement-based material - the engineered chemical barrier. The evidence is that the results of research to date indicate that a very high level of containment by the physical barrier should be maintained for at least 1,000 years during which some 99% of the radioactivity in the repository would decay. I turn aside to comment that the preliminary risk assessment in evidence before the Inquiry assumes conservatively, however, that all radioactivity will be available for release immediately upon closure of the repository.(2) The chemical barrier would operate for around 1 million years and would act to contain most (around 99%) of the long lived radionuclides, i.e. 99% of the 1% which is not contained by the physical barrier. Hence the remaining radioactivity of up to 0.01% (one ten thousandth of the radioactivity of the waste emplaced in the repository) will be released through the chemical barrier and transported away from the repository through the natural geological barrier, mainly by the flow of groundwater.(3)

12.3 The evidence identifies two key functions of the geological barrier in respect of the transport of radionuclides in groundwater, namely to ensure:(4)

	i.	that there are low flows of groundwater through the repository so that the physical and chemical barriers can operate to retain short-lived and most long-lived radioactivity, i.e. some 99.99%; and
	ii.	sufficient dilution of those radionuclides that are released from the vaults in order to limit concentrations reaching the surface to meet regulatory requirements.

12.4 Establishing whether the geological setting at Sellafield can perform these two key functions is a key objective of Nirex's site characterisation programme and of the RCF as part of it.(5) It is Nirex's conclusion that the site has the characteristics favourable to the performance of these functions.(6)

12.5 Dr. Chaplow has presented a summary and interpretation of this data by his main proof of evidence and the appendices to it(7), and the substantial volumes of drawings illustrating the data obtained till October 1995(8). Some interpretative reports underlying this evidence are also before the Inquiry.(9) I contend this is enough, indeed more than enough, to provide the Secretary of State with the information he wanted on the studies and surveys of the geology and hydrogeology of the area and, together with the preliminary risk assessment which stems from this information, the results of those studies and surveys. I do not remember a request by the Inspector or the Assessor for more. Mid-way during the Inquiry the Inspector asked(10) how much notice would be needed if the Assessor wanted to examine any of the reference documents on which Dr. Chaplow was relying and which lie in the Greengarth library so that it or they could be brought to the Inquiry. The Inspector said that he and the Assessor had not made up their mind on whether they would wish to see any such document. I told him an hour or so. No request was thereafter made for a document to be brought from Greengarth.

12.6 Nirex have tried hard to present in a comprehensible and digestible form a summary and interpretation of the vast amount of data they have obtained from investigations so far. It is recorded in some 500 published reports, journal articles and conference papers, and 1,600 volumes of underpinning factual data lying on shelves at Greengarth for public inspection.(11) Since the evidence was prepared six months ago in July 1995 more data has, of course, been acquired, more results interpreted, and more reports have come into draft and are being reviewed and revised prior to approval for publication in accordance with Nirex's quality assurance procedure. And this process of scientific work will continue.

12.7 I certainly do not intend to attempt some repetition or summary of this written evidence, further amplified in cross-examination and answers to questions by the Inspectors and the Assessor. Before, however, I move to a consideration of the issues raised by the County Council and other Objectors, I would wish to draw particular attention to two pieces of evidence:

12.7.1	First, Dr. Chaplow's conclusions(12) that <i>"a high level of understanding of the groundwater conditions has been developed"</i> and the <i>"prognosis of the site conditions, as presented by Nirex in 1989 .. has been confirmed"</i> .
12.7.2	Second, Dr. Chaplow's Appendices, on which relatively little time was spent in his oral evidence but which give valuable information. He there describes(13) in some detail the scope and purpose of the various investigations, surveys and testings which have been carried out, identifying in most instances on the attached tables the reports and drawings which show the results.

**Baseline Conditions**

12.8 He then(14) deals at some length with Hydrogeological Baseline Conditions. He acknowledges that:(15)

*"Carrying out investigation and construction activities at the Site perturbs the groundwater pressures and can perturb the geochemical characteristics of the groundwater."*

and accepts that:

*"It is therefore important to have established both the groundwater pressures and the geochemical conditions before construction of the RCF commences."*

The need for baseline conditions to be established before construction of the RCF begins is not, therefore, in dispute.(16)

12.9 Dr. Chaplow then says, for the reasons he gives, that baseline conditions have been established in terms of groundwater heads and geochemical conditions.(17) I invite the Secretary of State to accept this evidence, or at least the sufficiency of it to enable the grant of planning permission for the RCF. I return later to that submission in more detail. The point that I wish now to draw out is his conclusion that:(18)

*"... the chemical characteristics of the groundwater conditions at present are sufficiently well defined and understood such that we can monitor the perturbations of the system by the construction of the RCF, and interpret the results to provide a better understanding of the groundwater system." (my emphasis)*

He returns to this question of sufficiency in his supplementary proof where he explains:(19)

*"... why sufficient geochemical information, of sufficient quality, is already available for these purposes ..." (my emphasis)*

12.10 This question of sufficiency goes to the heart of the essential difference between Nirex and most of the scientific evidence given on behalf of Objectors. It arises here in the specific context of the sufficiency of the baseline geochemical conditions. It arises again specifically in relation to baseline groundwater heads and whether any more monitoring, sampling or testing is needed to establish this baseline.(20) Nirex's case is that they have learned enough, though drawing attention to the fact that on the present timescale for the Secretary of State's decision they will have a little over another two years of monitoring, running from October 1995 which is the date of the last results that are before the Inquiry,(21) before RCF construction could be begun.(22) Objectors want more monitoring and more boreholes/monitoring points.

12.11 The issue of sufficiency arises, however, over a much wider field - for example, whether Nirex must have a complete knowledge of the fracture network so that they can map it(23), or whether a 3D seismic survey beyond the existing trial survey area is necessary - such work to be done and information obtained before the RCF is begun. I return to those issues later.

### *Groundwater Monitoring*

12.12 On the present issue - whether the information on baseline conditions is sufficient - the initial and fundamental question must be the definition of the expression. Mr Reeves says:(24)

*"The key issue for hydrogeological data gathering is to provide sufficient groundwater data to ensure that the short and long term effects of RCF construction on the local and hydrogeological regimes may be reliably quantified."*

Dr. Chaplow makes a similar point:(25)

*"In order to be able to use the pattern of groundwater pressure changes caused by the construction of the RCF to obtain an understanding of the hydrogeological properties of the site it is necessary to be able to distinguish construction effects from those which are due to other effects, whether natural or artificially induced."*

Dr. Holmes puts Nirex's view of what is meant by baseline conditions clearly:(26)

*"Prior to construction of the RCF, baseline conditions for groundwater pressures and geochemical conditions need to be established. Sufficient information needs to have been acquired so that:*

- *the disturbance created by the RCF can be measured with confidence and used to test and develop models of the site; and*
- *there is a sufficient database on undisturbed conditions that the properties of the PRZ can be interpreted within the context of regional groundwater flow and hydrochemical models."*(my emphasis)

12.13 There is substantial agreement, therefore, between Nirex and Mr Reeves on what is meant by baseline conditions and what needs to be acquired to establish them. I invite the Inspector's agreement to this definition.

12.14 Dr. Salmon, however, imposes an arbitrary time length in his definition:(27)



*"... when relatively stable or predictable environmental heads and geochemistry have been observed over a period of four to five years at all existing and proposed monitoring points."*

This period of 4 to 5 years was to run, he said, after completion of the last borehole. This definition, it is submitted, is unrealistic and inappropriate.

12.15 Where there is disagreement, therefore, is the lengths of time necessary to permit baseline conditions to be established and the extent of the network of instrumentation required to achieve this. Mr. Reeves wants another 7 to 10 boreholes(28) including *"three or more "* deep boreholes offshore.(29) Dr. Salmon not only wants 4 or 5 years more monitoring, that period to run from the last positioned borehole and after all the testing has been done and the effects have been reversed back to the undisturbed condition(30), but also another two boreholes (and *"a case could be made"* for one or more deep offshore boreholes) *"to further define the geological sequence and hydrogeology in three dimensions"*.(31)

12.16 Neither, it is submitted, showed a clear need for those recommendations. Neither witness tied their recommendations back to safety assessment. It is, as Dr. Holmes said,(32) *"the evaluation of the overall post-closure safety performance of a repository at a site which determines its suitability or otherwise."* Any proposals for additional boreholes or tests must, therefore, be based on anticipated increases in confidence in the assessment of post-closure safety.

12.17 Dr. Chaplow gave evidence of the performance of the monitoring system and concluded: (33)

*"Settle-down effects have been observed in several of the boreholes,..... Following settle-down the horizontal lines on the monitoring plots, indicating a constant head with time, are indicative of baseline having been established."*

The later October 1995 results show nothing different.(34)

12.18 In February 1993 RWMAC commented that to establish the 'base hydrogeological regime' *"a period of 18 months to two years monitoring prior to the commencement of shaft sinking would be regarded as normal practice"*.(35) In September 1995 they reported that their recommendations over timing were *"now likely to have been met in view of the interpolation of the RCF planning inquiry."*(36) In that same month Professor Lloyd, a member of Nirex's Review Panel, reviewed groundwater pressure distribution.(37) He concluded that a comprehensive baseline pressure head distribution had been obtained.

### *Geochemical Conditions*

12.19 For the reasons Dr. Chaplow gives, Nirex's case is that the information they have on the geochemical baseline is *"fit for the purpose"*.(38) They recognise that certain geochemical parameters, especially Eh and pH, have not yet been definitively measured. The limitations imposed by deep boreholes mean that Nirex cannot directly measure Eh and pH in a reliable way.(39) In their view the RCF offers the only practical means to collect other 'baseline' hydrochemical data, for technical reasons which Dr Chaplow explained.(40)

12.20 Dr. Wogelius did not suggest that perfectly satisfactory samples could have been obtained from boreholes, and accepted the possibility, as he put it, that more undisturbed samples could be obtained from the RCF.(41) Dr. Haszeldine accepted the problems of taking samples rigorously and exactly from boreholes.(42)

12.21 Hence, it is submitted, Nirex have made their case without real dispute that they have gone as far as they can from borehole samples in establishing the geochemical baseline conditions and they need the RCF to take those investigations further.

### *Delay, Cost and Responsibility*

12.22 The Secretary of State will wish to pay attention to the delay and cost implications of acceding to the suggestions made by Objectors. If, following a decision by him in general support of those suggestions, Nirex must then put down more boreholes - whether 7 or 2 or any other number - and then monitor for 5 years from the completion of the last borehole, this would involve a delay of not less than, say, 7 years from his decision in about

mid-1997. Friends of the Earth want peer review of the baseline conditions, publication, opportunity for comments and a seminar. Say, another 2 years to make 9 in all. This is FOE's figure(43), and it must be about right. This takes us to about 2006. If it were then necessary to re-apply for planning permission for an RCF, the delay could take Nirex to 2009/2010 for an RCF permission -13 to 14 years from today. This delay would also be reflected in costs, additional to the work involved. The implications of such additional delay and costs must weigh heavily against the Objectors' cases. The Secretary of State would need to be satisfied on the very clearest evidence that these cases were made out before he could issue a decision which imposed on Nirex's programme of investigations these serious delay and cost consequences. Whilst the Government lays down no fixed timetable for the provision of a repository, it emphasises the need to avoid unnecessary delay.(44)

12.23 The Secretary of State will need, moreover, to ask himself to what extent he should intervene in matters which are for the Regulator or for Nirex in their dealings with the Regulator. It is for Nirex to make a safety case to the satisfaction of the Regulator if they decide to propose a repository at Sellafield. If Nirex do not sufficiently establish baseline conditions before they begin the construction of the RCF, so that their predictions of the effect of the RCF excavation are not adequately validated, it will be for the Regulator to decide whether any safety case they present to him is unsatisfactory. Nirex well know these consequences of failing to establish the baseline conditions. It is in their interests to show the Regulator that they have established this baseline before constructing the RCF. What cause has the Secretary of State on this planning application to intervene on these matters? What land use planning considerations arise which entitle him to do so?

#### *Assurance*

12.24 Evidence has been given(45) of Nirex's discussions with the regulatory authorities about the terms of an agreement to provide for structured dialogue between them about relevant aspects of the Nirex programme, prior to the submission of an application for authorisation of waste disposal under the RSA at any repository proposed at Sellafield. Those discussions with the regulatory authorities continue with the objective of executing an agreement with the Environment Agency once it comes into operation from the 1 April 1996. One specific aim of the parties is to agree a programme that defines a set of submissions by Nirex and responses from the regulatory authorities.

12.25 I am instructed to give the Secretary of State an assurance by Nirex in the following terms:

*"Nirex work to extend and refine information about baseline conditions continues. A further independent peer review of the available data, considering both groundwater pressures and hydrogeochemistry, is planned to be carried out by the end of 1996. Nirex intends that, to provide the Environment Agency with an opportunity to give a view prior to the start of underground characterisation, a peer-reviewed baseline report will be supplied to, and discussed with, the Agency prior to the commencement of RCF shaft sinking. The Company will take due account of views expressed by the Agency before shaft sinking begins. The Company intends that the peer-reviewed submission which is put to the Environment Agency will be published."*

12.26 I entertain no doubt that the Secretary of State will attach weight to this assurance in the context of the intended agreement with the regulatory authorities as Nirex's investigations continue.

#### **Sufficiency Generally and the Claimed Need for Further Investigations**

12.27 The argument on baseline conditions illustrates the philosophical divide between Nirex and many witnesses for the County Council and other Objectors. For Nirex the acquisition of data is not an end in itself. The end purpose is to produce a safety assessment within regulatory guidelines to the satisfaction of the Regulators. They need, in short, to have a sufficient understanding of the geology and hydrogeology of the site to provide input to the conceptual and mathematical models and hence lead to a reliable probabilistic safety assessment. Information which they do not need for that purpose they do not need at all.

12.28 Much of the evidence for the County Council and other Objectors is directed towards the acquisition of information which is not necessary for this sufficient understanding of the site.

12.28.1	Professor Mather wanted more boreholes unquantified in number save that it was " <i>certainly in double figures</i> ".(46)
12.28.2	Dr. Haszeldine wanted smaller, less invasive tests across and between different boreholes, though that did not necessarily require drilling any more boreholes.(47)
12.28.3	Dr. Kokelaar said(48) that, if Nirex needed an accurate characterisation of the PRZ, that would require boreholes at about 10 metre intervals, which he said was clearly unreasonable. But it was not his evidence that accurate characterisation was needed; that was for other FOE witnesses, but none said that it was needed.
12.28.4	Professor Smythe did not want any more boreholes; Nirex already had enough.(49) What he wanted was a 3D seismic survey of an area of up to 20km by 30km beyond the 3D survey which Nirex had already carried out under his supervision covering the whole of the land surface of the RCF.(50) But he gave little, if any, evidence of how such an extensive survey would advance Nirex's understanding of the hydrogeology of the site. Whilst Nirex have programmed further 3D survey work(51), they have yet to decide whether to have it carried out because of their present doubt about the value of the information it would provide to their necessary sufficient understanding of the site.(52)
12.28.5	Mr. Reeves wanted another 7 to 10 boreholes, and Dr. Salmon another two, with perhaps one or more offshore. He also suggested salinity monitoring.(53)

12.29 I have already addressed those investigations which are said to go to establishment of baseline conditions. In relation to the rest of this attempted summary of an extensive, and diverse, shopping list of additional investigations I make the following submissions.

12.30 Clearly information from further investigations from the surface would add to Nirex's understanding of the geology and hydrogeology of the site. They propose to carry out such further investigations in advance of and in parallel with the RCF, including some more boreholes and possibly more 3D seismic surveying.(54) But that information, whether from the investigations Nirex propose or from those which Objectors say Nirex should carry out, will not give Nirex what they need and want from the RCF - characterisation of the networks of connected fractures, which only direct access to the rocks underground via the RCF can provide. If further investigations from the surface will not provide information which could be obtained from the RCF, the cost-effectiveness of carrying out such further surface work, in terms of money, resources and delay (and hence again cost), becomes crucial.

12.31 Mr. Folger's evidence(55) shows the projected cost, in 1995 prices, of RCF construction and associated scientific work at £195m and the maximum annual expenditure of £30.6m. At the time of that peak, expenditure on non-RCF site investigation, engineering studies and safety assessment is very much less.(56) The cost of reverting to a substantial surface-based programme of investigations would plainly be considerable. To that must be added the fact and cost of significant delay in beginning the construction of the RCF, which would still be necessary, up to some 14 years from today.

### **Complexity**

12.32 The complexity of the site formed a large part of the evidence of Professor Mather(57) and Drs. Kokelaar(58) and Salmon(59) and is referred to by Mr. Reeves, Professor Smythe and Dr Hencher. Complexity, Nirex accept, is an issue which must be addressed thoroughly, but it is not a disqualifier of the site, though it may add to the difficulties of characterisation.(60) What matters is which of the features or what part of that complexity needs to be characterised and understood in order to have a sufficient understanding of the system and capability to predict its behaviour.(61) Nirex's case is that they sufficiently understand the system to justify further investigation by the proposed RCF. That case I invite the Secretary of State to accept.

12.33 The peer review judgment of Professor O'Nions, expressed in moderate and colloquial language, is important. He said in oral evidence that the degree of complexity at Sellafield is now sufficiently characterised to get to a good "*first order*" for that system to have predictability.(62) This underpins his judgment that "*the results available so far for the Sellafield site show that it has the potential to host a repository with an appropriate safety*

performance and sufficient potential for development of the RCF to be justified in scientific terms"(63). It led to his endorsement of Nirex's view of good promise.(64)

## Earthquakes

12.34 I do not propose to say much about Earthquakes. I touch upon it more because of the emotiveness of the subject than its importance to this appeal.

12.35 Nirex have addressed the subject. Dr. Chaplow gave evidence on it(65) and an extract of Nirex's Report on it is before the Inquiry.(66) The Nirex Review Panel have considered the issue and expressed the view that "earthquakes are unlikely to be a major threat to the performance of the Sellafield site."(67) ERM's advice to the County Council in 1992 was to the same general effect.(68) Professor O'Nions draws attention to the absence of "evidence for significant perturbation of the site by seismic activity over the last 100,000 years or more."(69)

12.36 Nirex have carried out studies and surveys on the question but have concluded that:(70)

*"characterisation of the faults and fractures to provide information on how the fracture system is evolving requires access to the rock mass at depth. This can only be provided in the RCF .."*

12.37 Hence the RCF will advance the necessary studies and investigations. There can be, and is, no case against the RCF on the ground of potential earthquakes. It is for the Regulator to be satisfied of that matter in the context of the safety case that he will require if a proposal for a repository is made.

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(2)	COR/522 Vol 3 section 6.1.3 p.6.2
(3)	PE/NRX/14 para 2.12
(4)	PE/NRX/13 para 4.6.
(5)	PE/NRX/13 para 4.7
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(9)	e.g.COR/523, COR/524, COR/525, COR/530
(10)	Day 32 am
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(12)	PE/NRX/14 paras 6.77, 6.78
(13)	PE/NRX/14 Appendix 1
(14)	PE/NRX/14 Appendix 2
(15)	PE/NRX/14 Appendix 2 para B.1
(16)	See also PE/NRX/14/S1 para 2.2iii & PE/NRX/13/S1 para 3.25
(17)	PE/NRX/14 Appendix 2 para B.1.1
(18)	PE/NRX/14 Appendix 2 para B.3.13
(19)	PE/NRX/14/S1 para 10.30
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(23)	Dr. Kokelaar Day 52 pm
(24)	PE/FOE/4/S1 para 3.2
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(26)	PE/NRX/13/S1 para 3.25
(27)	PE/FOE/5/S1 para 4.4
(28)	Day 53 RX pm
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(30)	Day 54 XX am & pm
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(32)	PE/NRX/13/S1 para 3.31
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(34)	COR/518A
(35)	GOV/408 para 19
(36)	GOV/414 para 14
(37)	NRX/14/3
(38)	PE/NRX/14/S1 para 10.34
(39)	Chaplow XX Day 32 pm
(40)	PE/NRX/14/S1 para 10.39. Chaplow to Ass Inspector Day 34 pm.
(41)	Day 57 am & pm
(42)	Day 50 pm
(43)	Popham in Closing
(44)	GOV/208
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(46)	Day 40 pm to Asst Inspector
(47)	Day 50 pm to Asst Inspector
(48)	Day 52 XX pm
(49)	Day 53 XX am, RX am
(50)	NRX/14/10; Day 52 pm
(51)	PE/NRX/14 para 8.18
(52)	PE/NRX/14 Table 6.3(c) Item 1
(53)	Day 54 pm to Assessor
(54)	PE/NRX/14 paras 6.84, 7.34, 8.18 & Table 6.3
(55)	PE/NRX/12 paras 9.27-9.32, Tab 9.1; Fig 9.1. PE/NRX/12/S1 paras 4.5-4.11, Tab 4.1, Fig 4.1.
(56)	PE/NRX/12/S1 Fig 4.1
(57)	PE/CCC/4 p 41 para 6.7.1
(58)	PE/FOE/2/S1 paras 2.2, 4.2
(59)	PE/FOE/5 para 2.21
(60)	PE/NRX/14/S1 para 5.87; PE/HMP/1 para 4.8.
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(63)	PE/NRX/17 para 6.4

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(66)	GNP/3/27
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# UNITED KINGDOM NIREX LIMITED

## Rock Characterisation Facility

Longlands Farm, Gosforth, Cumbria

### CLOSING SUBMISSIONS OF THE APPELLANT

#### 13. THE PRELIMINARY RISK ASSESSMENT

##### The Regulatory Framework and the Risk Target

- 13.1 I have summarised above Government policy and draft HMIP Guidance with regard to the risk target. Nirex assesses individual risk within that regulatory framework.
- 13.2 Greenpeace argue that, in formulating policy in the 1984 Green Book(1), the regulators allowed for a margin of safety to take account of unknown uncertainties, whereas such a margin of safety is not allowed for in the current approach of Government policy and of the Regulators. Current draft guidance does, however, indicate that the developer will need to demonstrate that the safety case takes adequate account of all relevant uncertainties(2). As Dr Holmes explained, this guidance indicates that there is a need to carry out a thorough and comprehensive scientific programme to address uncertainties rather than to build in a specific margin of safety to take account of such uncertainties(3). The RWMAC/ACSNI Study Group makes the same point(4).
- 13.3 It is in that light that(5) Nirex have undertaken an assessment which expressly acknowledges and takes due account of uncertainty(6) through the use of probabilistic safety assessment(7) in which parameter values are specified as ranges rather than exact values and the equations are solved using values selected from those ranges using a Monte Carlo sampling technique. I am not aware of any direct challenge by the Objectors to this approach. Indeed, Dr Hencher, for example, expressly endorsed Nirex's approach (in that case to the modelling of groundwater flow, namely, deterministic modelling of major features combined with stochastic modelling of others)(8).
- 13.4 From this PSA process, the expectation value of risk can be calculated for the post-closure period. This, in turn, leads to the risk against time plots with which the Inquiry has become familiar(9). As Dr Hooper has explained(10), these enable the only proper comparison to be made against the risk target.
- 13.5 I note, in passing, that witnesses for the County Council *had* sought to suggest that some margin should be left between the calculated expectation of risk values and the risk target, either by reference to the present, preliminary, assessment of risk(11) or in general(12). I simply stress that there is no basis or requirement for this within the regulatory framework. Dr Starmer accepted that the proper application of the UK regulatory framework was through the comparison of expectation value with the target and, moreover, that he was not suggesting that some other value (such as the 95th percentile) must be compared to the target (13). That said, it should not be thought that Nirex are oblivious to, or are seeking to diminish the importance of, the full range of values which the realisations arising from the probabilistic assessment may generate. Regulatory guidelines require that adequate account is taken of the uncertainties that such realisations represent(14) and, as Dr. Hooper noted(15), Nirex would be concerned if there were a

significant spread of risk values greater than 10<sup>-5</sup> even if the expectation value of risk were lower than 10<sup>-6</sup>.

## Nirex 95

- 13.6 As its title announces, *Nirex 95* is a preliminary analysis and is confined to the groundwater pathway. It uses the data collected from the Site Characterisation Programme up to April 1994 and the results of the Nirex Safety Assessment Programme which has been under way for several years(16). It brings together the range of considerations involved in modelling the hydrogeology of the Sellafield Site(17). It combines these with an understanding of the mechanisms which control the transport of radionuclides in the groundwater(18) including the geochemistry of the "far field" (or geosphere)(19). As such, it brings together Nirex's present understanding of the processes and factors which, for the groundwater pathway, determine the post-closure safety performance of a repository at Sellafield. In that manner, it enables comparisons properly to be made with the risk target.
- 13.7 Much of the criticism of *Nirex 95* (to which I shall return) appears to come from either the misapprehension that it purports to be more comprehensive or final than is actually the case, or the assertion that a more comprehensive or final assessment needs to be presented to this Inquiry. In that context I draw attention to the precise manner in which *Nirex 95* describes itself. Thus, as the preface to each of its volumes expressly states(20):

*"The programme of work presented here (Nirex 95) is a preliminary analysis of the groundwater pathway for a deep repository at Sellafield. It is not a comprehensive safety assessment, which would require the systematic evaluation of a wider range of repository features, external events and underlying processes and pathways. Nirex 95 forms part of an iterative approach to the development of the disposal concept in concert with safety assessment. In due course, this programme of work will underpin a decision by Nirex on whether to propose development of a repository at Sellafield, and ultimately will help to inform decisions by regulators on the authorisation of disposal."*

- 13.8 I invite the Secretary of State to assess *Nirex 95* on that basis and to accept that the evaluation undertaken in *Nirex 95* is appropriate, not only at this stage in Nirex's overall programme, but also as part of Nirex's case in seeking planning permission for the RCF.

### *Conservatism within Nirex 95*

- 13.9 In accordance with its overall approach to performance assessment and, in particular, in the context of a preliminary assessment with which there are associated inevitable areas of uncertainty, Nirex have adopted what they describe as a "conservative approach" to modelling and safety assessment. As stated by Dr Hooper(21):

*"Nirex does not accept that a complete understanding of all processes is essential to assessing system performance. Dealing with uncertainty is recognised by Nirex and HMIP as an integral part of carrying out post closure performance assessments. When knowledge is incomplete it is accepted that this uncertainty is dealt with either explicitly, within a range of models, or through the use of appropriate parameter distributions in a probabilistic assessment."*

Also:

*"Nirex, in line with international practice, deals with uncertainties by making conservative assumptions until such time as those uncertainties can be better resolved."*(22)

- 13.10 In his Supplementary Proof of Evidence(23), Dr Holmes identifies a number of specific conservative assumptions which have been made in *Nirex 95*(24) including the following:

- unrestricted access of groundwater to wastes immediately after repository closure(25);



- release of radionuclides from repository vaults to Type II features which are the shortest route across the BVG(26);
- the absence of mineralisation as a mechanism for reducing uranium-238 solubility(27);
- reduced sorption in the near field(28); and
- an agricultural well at the maximum depth consistent with local practice(29).

13.11 By way of further illustration, I also draw attention to the following additional examples of "conservatism" in Nirex's work:

- the reduction of radionuclide sorption in the geosphere(30);
- the treatment of sorption by the use of distribution coefficients (Kd values)(31);
- the effect of channelling within fractures(32);
- the simplifications in the calculation of risk from radioactive gases (carbon-14)(33); and
- the selection of a factor appropriate to uranium IV, by which the solubility of uranium in the near field is multiplied to take account of organic materials, which gives the highest solubility limits(34).

13.12 A matter related to this use of conservative assumptions is the approach to the selection of parameter values for use in PDFs in the PSA; here too, a conservative approach is adopted(35).

13.13 A small number of more specific challenges have been made to particular PDFs. For example, it transpired during cross examination of Dr Western that what she and Dr Wogelius had described as "errors" of "10,000 fold" in Nirex's sorption database(36) was in fact a reference to the width of the PDF used by Nirex to embrace uncertainty in the underlying data(37). Dr Western expressly accepted the appropriateness of the use of PDFs(38). Her underlying criticism appeared to be that the PDFs being used implied a fundamental misunderstanding of the processes in question(39). The Nirex position is that the PDFs are a means of recognising the possible processes and of accommodating the uncertainties about their operation. In any event, Dr Western noted that, as understanding improved, the PDFs would become sharper(40). This last matter is notable because of its consistency with Nirex's aspiration of narrowed PDFs as set out by Dr Holmes(41).

13.14 Although criticisms were made of various aspects of Nirex's understanding of the system, these did not translate into criticisms of the PDFs through which Nirex have reflected that understanding. For example, Dr Haszeldine accepted that, notwithstanding his criticisms of Nirex's understanding and modelling of the fracture network in the BVG, he was not saying that the PDFs used by Nirex for modelling the hydraulic conductivity of the BVG(42) should be widened(43).

#### *The Use of "Variants" to Explore Uncertainties*

13.15 The thrust of *Nirex 95* is a "base case" which leads to risk against time curves for appropriate climatic states(44) and "early" and "late" peak risk for the "boreal terrestrial" climate state of  $1.1 \times 10^{-7}$  and  $3.3 \times 10^{-7}$  respectively(45). These values fall within the risk target of  $10^{-6}$ .

13.16 In order to explore issues that were not identified within the base-case model, a number of "variant" models have been investigated by means of variant calculations(46):

- the imposition of high heads and salinity distribution(47);
- the imposition of a transmissive feature at depth(48); and
- the imposition of a number of different representations of the hydrogeology(49).

Exploration of these variants serves to provide confidence in Nirex's preliminary base case risk assessment.

13.17 Criticism has been levelled at the fact that Nirex's base case does not reproduce fully the heads at depth. However, as expressly stated in *Nirex 95*, it was expected that the calculated heads in the base-case model would not fully reproduce the high heads observed at depth in the vicinity of the PRZ(50). Rather than present a base case model in which high heads were imposed, it was considered appropriate to run such a model as a variant (as noted above). As a result of this exercise, Nirex have recognised(51) that a feature or process not included in the current base case groundwater models needs to be incorporated into those

models. Dr Hooper has explained that the addition of a geothermal flux at depth in the model may well lead to good agreement with field observations(52); and also, the timescale upon which that work will be undertaken to ensure its completion prior to RCF shaft sinking(53).

13.18 On the basis of these variants, Dr Hooper concluded(54) that:

*"...the risks calculated to arise from a repository at Sellafield were not greatly changed as a result of changes in the spreading time for radionuclide transport in the geosphere if the duration of their release from the repository remains constant .... Similarly, the system is robust to changes in the duration of the release if the spreading time in the geosphere remains constant. It is only if the duration of the release and spreading time in the geosphere both have values significantly lower than currently calculated that individual radiological risk in excess of 10<sup>-6</sup> were calculated in Nirex 95 ... to arise from natural discharges to the surface."*

13.19 The only witness to suggest that Nirex are wrong to treat these two matters as independent was Dr Wallace for Greenpeace(55). Dr Hooper responded with his analysis of the main controls on flux through the repository on the one hand and travel time through the sandstones on the other(56). He concluded that the two are independent. This leads Nirex to conclude that Dr. Hooper's statement that the system is robust to variations about the base case is soundly based.(57)

13.20 Dr Wallace observed, under cross examination, that the sensitivity of risk to flow through the repository is *"precisely the kind of factor which Nirex should be investigating."*(58) On this matter I draw attention to the concluding paragraphs of *Nirex 95* and in particular, the following(59):

*"Building confidence in calculated values of geosphere and source-term spreading times would increase confidence in the calculated risks. The source-term spreading time is strongly dependent on the effective permeability of the BVG. Data from the proposed [RCF] would improve the characterisation of the BVG and provide data on its effective permeability. Data would also be obtained on groundwater flow and transport processes in the region of the PRZ, which would build confidence in the models used in assessments."*

In short, the key uncertainties identified by Dr Wallace are precisely what the RCF is to address, and moreover are matters which can only be addressed through the RCF.

#### *Alleged Omissions from Nirex 95*

13.21 Unsurprisingly, witnesses for the Objectors have pointed to various matters which they say have not been, but should have been, incorporated into *Nirex 95*.

##### i. A 3D Hydrogeological Model

13.22 Dr Salmon noted that Nirex's field investigation has *"generally been of a high quality"*(60), but expressed the view that Nirex should have had a 3D, time-variant, hydrogeological model(61) of the Sellafield *"region"* before this Inquiry in order to inform the Secretary of State of the *"impact of the RCF"*(62). Dr Chaplow said that some 3D modelling work has already been carried out by Nirex(63). Dr Hooper explained(64) that the *"simplification"* to 2D models in *Nirex 95* has been undertaken conservatively, and that Nirex will introduce 3D modelling at an appropriate stage being responsive on the matter to the view of the Regulator. In my submission Dr Salmon's view is based upon a misunderstanding of what the Secretary of State requires at this stage and I invite the Secretary of State to reject that view.

##### ii. Geochemical processes

13.23 Drs Wogelius(65) and Western(66) identified a range of geochemical factors to which, they assert, Nirex has failed to pay due attention.

13.24 Dr Hooper responded in detail to each of the matters raised(67) and there is no merit in my repeating his response. However, I will highlight two examples, colloids and sorption, about which Drs Green and Western were particularly exercised, to illustrate Nirex's integrated approach to developing the safety assessment.

13.25 Dr Hooper has explained Nirex's view on the suggestion that colloids in groundwater may facilitate the transport of radionuclides, namely:(68)

- that for colloids to be a problem in the safety assessment a number of unlikely factors must occur simultaneously;
- preliminary investigations suggest the colloid population to be low in the Sellafield groundwaters;
- natural analogue studies suggest that colloids will not be a problem; and
- the issue can only be explored through a combination of continued laboratory studies, natural analogue studies and *in situ* observations in the RCF.

13.26 Turning to the suggestion that Nirex may have overestimated the extent to which sorption will constrain the transport of radionuclides in the far field, I note that the criticism ignored the reduction that occurs when account is taken of the probability that only a fraction of the available sorption sites in the rock are accessed by radionuclides(69) and the conservative assumption that organic degradation products will attenuate sorption throughout the BVG at a level fixed by organic concentrations in the repository(70). I also refer the Secretary of State to Nirex's plans for further laboratory work in this area(71) and to the advantages Nirex will gain through *in situ* experiments in the RCF where experiments can be conducted under natural geochemical conditions (for example, on naturally- aged mineral surfaces) and on length scales greater than can be studied in the laboratory(72).

13.27 Thus, I invite the Secretary of State to conclude that:

- Nirex's programme of geochemical research is, and is necessarily, an integrated programme;
- The RCF is critical to that programme;
- The programme has reached a stage at which it is appropriate to move forward with experiments in the RCF;
- Finally that the fact that *Nirex 95* does not explicitly take account of the possibility of colloid transport does not render *Nirex 95* in any way deficient.

### iii. Engineered features

13.28 Dr Salmon has made much play of some of the matters reported in *Nirex Report 560*(73). In particular, he criticises it for being "*only a series of scoping studies*" and points to matters (such as the potential for flow along shafts and drifts) which are not explicitly incorporated into *Nirex 95*.

13.29 The purpose and effect of *Nirex 560* appears to have been misunderstood. Specifically, *Nirex 560* scoped the impact in terms of potential flows arising in the context of a range of, for example, backfilling and sealing qualities(74). As Dr Hooper reports(75), Nirex consider that the permeability levels which *Nirex 560* indicated shaft seals would need to achieve can be achieved; and that, for the purposes of the Regulator, this aspect of a safety case will ultimately be informed by appropriate tests in the RCF. The fact that *Nirex 95* does not explicitly model the impact of shafts and drifts is, therefore, not an omission which casts any doubt on the overall safety assessment which *Nirex 95* presents. I suggest this issue is a prime example of matters which are for the Regulators if and when applications for a site licence and authorisation are made.

13.30 Dr Allison expresses concerns similar to those of Dr Salmon. He suggests, for example, the possibility for flows along the interface between the walls of an excavation and the backfill and seals within the excavation(76); the solution to which, he suggests, may be found in the use of "*cut off collars*"(77). These are not matters of which Nirex are unaware. Dr Hooper has noted the merit in the use of cut off collars and reports that such seal designs are under active consideration by Nirex(78). Dr Mellor says that experiments on the sealing of the excavation disturbance zone will take place within the RCF(79). Again, therefore, Nirex have not overlooked a matter which bears on the efficacy of the assessment in *Nirex 95*.

### *Climate change*

13.31 The County Council has criticised Nirex for not modelling the process of climate change(80). Dr Hooper has explained why the modelling that has been done to date (which does not explicitly include the effects of climate change except for biosphere scenarios) is robust to such challenge. He drew attention(81) to the

fact that the peak risks from release of chlorine-36 and iodine-129 are predicted to occur before any significant climate changes are expected by experts in the field; further, that the effect seen in the Dry Run 3 exercise (by HMIP's contractors) was attributable to an implausible treatment of human habits, rather than any geological phenomenon(82).

## The Agricultural Well Scenario

- 13.32 During the cross examination of Dr Hooper on behalf of the County Council, it emerged that Dr Starmer had particular criticisms of Nirex's "agricultural well" scenario. Before considering the detail of the criticisms, it must be noted that the agricultural well calculations have been presented by Nirex to the Inquiry as "*simple scoping studies*"(83) leading to a "*preliminary assessment*"(84) based upon significant conservatism(85), without at this stage taking account of the effects of any optimisation opportunities(86) which will have to be examined within any safety case for a repository(87).
- 13.33 The crux of the County Council's argument on this matter appears to be its assertion that Nirex have misused the critical group concept in relation to their assessment of the agricultural well scenario(88). Again, I say, this is an example of an issue which must be for the Regulator to determine if and when an authorisation application is made. HMIP guidance indicates that it is for the developer to justify the choice of hypothetical critical groups for the purposes of assessing risk in the further future(89).
- 13.34 Subject to that submission, I invite the Secretary of State to proceed on the basis that the appropriate definition of critical group can be derived from ICRP guidance(90), from the regulator's draft guidance (91), and from the NRPB guidance(92). He will bear in mind that the subject of critical group definition is currently under review(93) and that Nirex have recently made their views known in a peer-reviewed form (94). As the NRPB have previously emphasised(95), critical groups are to be defined in relation to homogeneity of risks rather than doses.
- 13.35 The County Council's case is based upon its interpretation of the NRPB guidance, namely that the critical group should all be assumed to live above the plume(96); albeit that, in closing, leading counsel for the County Council described an alternative case, namely that the critical group should be placed not just above the plume but above the greatest concentrations in the plume as "*strongly arguable*"(97).
- 13.36 The Nirex position is based upon their understanding of the NRPB guidance(98) The Nirex approach assumes that a subsistence community exists in the area where relevant environmental concentrations are at the highest. The approach then identifies appropriate critical groups within this reference community. In this approach, if the contamination were inhomogeneously spread across the primary resource area, individuals with the same habits and behaviour constitute a group within the hypothetical community which is homogeneous with respect to risk, but not necessarily with respect to dose(99).
- 13.37 The effect of the guidance provided by the Regulator is that it will be for Nirex to justify their approach to definition of critical groups if they submit an application for an authorisation(100). In my submission the Nirex approach is consistent with the guidance currently available. It certainly cannot be said that the Regulator would be bound to reject Nirex's approach.
- 13.38 The specific consequences of the difference between the approach advanced by Dr Starmer and Drs Hooper and Holmes were explored at some length in oral evidence. I do not propose to rehearse those matters. I simply note that, under cross-examination, Dr Starmer accepted that he is unable to say whether, as (what he termed) 'a more realistic picture of the site' emerges, the consequent risk assessments will necessarily produce higher risks(101).
- 13.39 In addition, I refer to a note(102) in which Dr Hooper sets out fully the reasons why the various multiplying factors which Dr Starmer suggested should be applied (to the preliminary estimate of peak annual individual risk of  $1.7 \times 10^{-6}$  to give a higher value) should be rejected. Mindful that the preliminary estimated figure is above the risk target, I draw attention to Dr Hooper's evidence(103) that some of the variant calculations undertaken by Nirex in *Nirex 95* which gave rise to lower risks include features which appear more compatible with recent observations at the site than the equivalent part of the base model.

## Conclusions

13.40 In the light of the matters I have just outlined, I invite the conclusion that Nirex's preliminary risk assessment, in the form of *Nirex 95*, provides sufficient confidence in the potential of the Sellafield site to justify the grant of planning permission for the RCF.

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## REFERENCES

- (1) GOV/302 para 3.8
- (2) HMP/1/1 paragraph 8.17
- (3) Dr Holmes XX by Ms Tripley, day 39 am; Dr Holmes re-examined, day 39 am
- (4) GOV 409 paragraph 3.38
- (5) PE/NRX/15/S1 section 4, p.13ff
- (6) PE/NRX/15/S1 paragraph 4.7
- (7) PE/NRX/15/S1 para 4.8; also COR/507 pp.3-5 as considered by Dr. Hooper in chief, Day 61 pm
- (8) Dr Hencher XX day 56 am
- (9) e.g. COR 522 Volume 3 figure 6.7
- (10) PE/NRX/15/S1 paragraph 4.9
- (11) Professor Mather in chief, day 40 am
- (12) PE/CCC/5S1 paragraph 5.2.2-5.2.3 page 6
- (13) Dr Starmer XX, day 41 am
- (14) HMP/1/1 para 8.17
- (15) Hooper X Assessor Day 61 am
- (16) COR 522, Volume 1, Preface, third paragraph
- (17) COR 522 Volumes 1 and 2
- (18) COR 522 Volume 3
- (19) COR 522 Volume 3 section 6.2.2
- (20) e.g. COR 522 Volume 3, Preface, second paragraph
- (21) PE/NRX/15/S1 paragraph 2.4ii, page 8
- (22) PE/NRX/15/S1 paragraph 7.72 page 89; see also, PE/NRX/13/S1 paragraphs 3.17 and 3.27.
- (23) PE/NRX/13/S1 paragraph 3.20 page 11
- (24) COR 522
- (25) COR 522 Volume 3 section 3.3.1(a) page 3.7
- (26) COR 522 Volume 3 section 3.2.4 page 3.5
- (27) PE/NRX/15 paragraph 5.49
- (28) PE/NRX/15 paragraph 5.23; also PE/NRX/15/S1 paragraph 6.32
- (29) PE/NRX/15/S1 paragraph 8.33; COR 522, Volume 3, pages 6.18-6.20
- (30) PE/NRX/15/S1 paragraph 7.49
- (31) PE/NRX/15/S1 paragraph 7.83
- (32) PE/NRX/15/S1 paragraph 9.57
- (33) PE/NRX/15 paragraph 5.42
- (34) COR 522 Volume 3 pages 6.6 and 6.7 (last paragraph of sub-section 6.1.6)
- (35) COR 507 pages 3-4
- (36) PE/FOE/8/S1 paragraph 1.5
- (37) Dr Western XX, day 58 am

- (38) Dr Western XX, day 58 am
- (39) in notable contradiction to Dr Wogelius who, by reference to the same sorption data, responded that the seven orders of magnitude covered by the PDF for uranium was not uncommonly observed; XX Day 57 am
- (40) Dr Western XX, day 58 am
- (41) PE/NRX/13 paragraph 2.9 (in relation to predictions of flow and dilution)
- (42) COR 522, Volume 2, figure 5.1
- (43) Dr Haszeldine XX and to the Assessor, Day 49 pm
- (44) COR 522, Volume 3, figure 6.6
- (45) COR 522, Volume 3, table 6.18
- (46) COR 522, Volume 3, page 7.1, second paragraph
- (47) COR 522, Volume 3, section 7.3, page 7.4
- (48) COR 522, Volume 3, section 7.4, page 7.5
- (49) COR 522, Volume 3, sections 7.5 - 7.8, pages 7.7-7.9
- (50) COR 522 Vol 3 para 7.3 page 7.4
- (51) PE/NRX/14/S2 para 4.10
- (52) Dr Hooper XX by CCC Day 35 am; XX by GNP Day 36 am
- (53) Dr Hooper to the Inspector, Day 61 am
- (54) PE/NRX/15, paragraph 5.40, page 29
- (55) PE/GNP/5, paragraph 6.13
- (56) PE/NRX/15/S2, paragraphs 6.12-6.14
- (57) PE/NRX/15/S2 para 6.14
- (58) Dr Wallace XX, day 60 am
- (59) COR 522, Volume 3, page 9.4, final paragraph
- (60) PE/FOE/5, paragraph 3.32
- (61) PE/FOE/5, paragraph 3.25
- (62) PE/FOE/5, paragraph 4.31
- (63) PE/NRX/14/S1, paragraph 8.63vi, second bullet point, page 78
- (64) Dr Hooper in chief, day 34 pm
- (65) PE/FOE/8
- (66) PE/FOE/8/S1
- (67) PE/NRX/15/S1, section 7, page 63ff
- (68) PE/NRX/15/S1, paragraphs 7.52-7.55, pages 81-83
- (69) COR 522 Volume 3 page 6.8 (third sub-paragraph of paragraph 6.2.2) and page 69 (second sub-paragraph of paragraph 6.2.3)
- (70) COR 522 Volume 3 page 6.8 (fifth sub-paragraph of paragraph 6.2.2)
- (71) COR 529, page 30
- (72) PE/NRX/15/S1, paragraph 7.90, page 94
- (73) FOE/5/19
- (74) FOE/5/19, Table 3.1
- (75) PE/NRX/15/S1, paragraph 6.60-6.61, page 50; see also COR 522 Volume 3, page 1.2 third paragraph
- (76) PE/FOE/7, paragraph 5.12
- (77) PE/FOE/7, paragraph 4.79(c)
- (78) PE/NRX/15/S1, paragraph 6.89
- (79) PE/NRX/16, paragraph 5.34, page 35
- (80) CCC closing submissions para 12.4
- (81) Dr Hooper in-chief day 34 pm

- (82) Dr Hooper, XX day 35 pm
- (83) PE/NRX/15, paragraph 5.38
- (84) ditto
- (85) for example, as set out by Dr Holmes, PE/NRX/13/S1, paragraph 3.20, fifth bullet p.12, the assumption of a well depth consistent with the maximum identified from practice in the area thereby ignoring the likelihood of shallower wells due to shallower interception of supplies; see also NRX/15/25.
- (86) PE/NRX/15, paragraph 5.39
- (87) GOV 208, paragraph 78 and HMP/1/1 para 7.13
- (88) PoE PE/CCC/5/S1, paragraph 10.6
- (89) HMP/1/1, paragraph 6.12
- (90) CCC/5/12, Radiation Protection Principles for the Disposal of Solid Radioactive Waste, ICRP Publication 46, paragraph 46
- (91) HMP/1/1, paragraphs 6.10 and 6.12
- (92) NRX/15/3
- (93) NRX/15/3, paragraph 33; Dr Holmes re-examined day 39 am
- (94) NRX/12/16
- (95) NRX/15/3 para 30
- (96) CCC closing submissions para 13.5(i) and 13.7
- (97) CCC closing submissions para 13.12
- (98) NRX/13/5
- (99) NRX/13/5, page 3
- (100) HMP/1/1, paragraph 6.12
- (101) Dr Starmer XX day 41 am
- (102) NRX/15/25
- (103) NRX/15/25, section 5 page 4

# UNITED KINGDOM NIREX LIMITED

## Rock Characterisation Facility

Longlands Farm, Gosforth, Cumbria

### CLOSING SUBMISSIONS OF THE APPELLANT

#### 14. ALTERNATIVE SITES

14.1 Within this general heading a number of issues arise which I here address under two main headings:

	A.	A Material Consideration?
	B.	Site Selection.
	.	
	<b>A:</b>	<b>A MATERIAL CONSIDERATION?</b>

14.2 The first is whether, or the extent to which, the existence or possible existence of potential sites for a repository other than Sellafield is a consideration material to the determination of this appeal. I submitted at the First Pre-Inquiry Meeting that it is not. I maintain that submission.

14.3 The existence of a site alternative to the site of a proposed development may be relevant where there are clear planning objections to the proposed development, which an alternative site *"for the same project"* would not have or would not have to the same extent.

*"It may well then be relevant and indeed necessary to consider whether there is a more appropriate alternative site elsewhere."*(1)

Putting the same point another way, comparison with another site is appropriate if, inter alia:

*"... an alternative site for the same project ..... would not have [the adverse effects or disadvantages of the proposal], or would not have them to the same extent;"* (2)

14.4 That essential requisite does not here exist. The development proposed is for an in situ rock characterisation facility to investigate and characterise the BVG and overlying sediments in the defined potential repository zone at Longlands Farm near to Sellafield. A rock characterisation facility at any other location would not characterise the BVG and overlying sediments at Sellafield. It could not, therefore, be an alternative to the proposed development. It would not be an alternative site for the same project.

14.5 The Inspector nevertheless allowed limited evidence and submissions to be given on alternative sites by a "preliminary" ruling at the First Pre-Inquiry Meeting. He referred to the tests given by the Court of Appeal in the GLC Case and gave his preliminary view that -



*"there were potential sites for a RCF wherever there were potential sites for a repository, and from the information which NIREX had given to the County Council it might be arguable that some of the other potential sites would not have adverse effects to the same extent as this one. The Inspectors emphasised this was with regard to effects in land-use planning terms only according to UK and EC law."*(3)

14.6 In my submission that reasoning is flawed. There is only a potential site for an RCF at a location where an RCF is needed to investigate and characterise the underlying rock. Nirex is not investigating any site as a potential repository site other than Sellafield and hence has no need for an RCF elsewhere. Hence the land use planning effects of an RCF at a location away from Sellafield are irrelevant.

14.7 Furthermore, there is not a potential RCF at any location unless and until the geology and hydrogeology have been sufficiently investigated by borehole and surveys from the surface to establish the sufficient potentiality of the location for a repository to justify and require further investigation by an RCF. Hence identification of alternative sites for an RCF would involve both the identification of locations considered as a potential repository site and the establishment of the sufficient potentiality of any such location for a repository to justify and require an RCF. This would in effect turn this inquiry into an investigation of the potentiality of alternative sites for a repository.

14.8 In the event neither the County Council, nor Copeland Borough Council, nor any other Objector to the proposed development displayed any interest in the effects in land use planning terms of any alternative site for an RCF or even for a repository. The thrust of the objection, on the evidence produced by Nirex, was that there were better sites in radiological and geological terms than Sellafield. I look at that ground of objection later.

14.9 I accept that there was no scope for an Objector to parade a case on the land use planning effects of an alternative site for an RCF, because Nirex has not identified any other location which it has considered as a potential site for a repository except Dounreay (Site 1 in MADA), a site under Sellafield Works (Site 9/Sellafield A in MADA) and, in a loose sense, Site 2 in MADA identified as in Caithness(4). Hence Nirex led no evidence on the land use planning considerations of RCFs at such sites. In my submission that decision was correct in law, because alternative sites for a repository are not relevant to the proposed development under inquiry.

14.10 It is submitted that although the question whether a particular matter is a consideration material to a particular planning application is ultimately one of law, it is for the decision-maker - in this case the Secretary of State - to determine the relevant facts which bear upon that question.

14.11 That jurisdiction, peculiar to the Secretary of State as the decision-maker, is particularly important in this case. Why should the potentiality of other sites for a repository be considered at this stage - in the context of an application for planning permission for an RCF at Sellafield? Why, therefore, should it be incumbent on Nirex to lead evidence on the other sites which it has considered before deciding to pursue further investigations at Sellafield? As the law stands at present an environmental statement in support of an application for planning permission for a repository at Sellafield could contain information on alternative sites for a repository considered by Nirex, and if it did not the local planning authority or the Secretary of State could issue a direction requiring such information to be provided.(5) Policy 57(1) of the Joint structure Plan, as it currently stands, provides for "*due consideration (to be) given to alternative locations*" for a development concerned with the final disposal of nuclear waste. "*Due consideration*" means due consideration in accordance with law and policy in force at the time. The occasion of a planning application for a repository would accordingly provide the natural opportunity for any issue of alternative sites for a repository to be given due consideration as a planning matter.

14.12 This present application for an RCF does not provide such an opportunity. For these reasons -

	14.12.1	It would involve naming the potential sites considered by Nirex for a repository before Nirex had made any decision as to which site to propose for a repository. Public alarm would be raised in the areas of such sites, heightened by the absence of any decision by Nirex to propose a repository at any particular site. Substantial local objection to a repository at any such site would inevitably be raised. The responses to the Way Forward make that clear.(6) The raising of such alarm would be irresponsible and this RCF inquiry would turn into a pseudo repository inquiry
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14.12.2		If and when any issue of alternative sites for a repository falls to be considered at an inquiry into a planning application for a repository, it is likely that objectors to the application will raise the question of the potential radiological safety of a repository at alternative sites, particularly post-closure safety. If the planning application were for a repository at Sellafield, it is foreseeable that Cumbria County Council would. I make no submissions as to whether such a question would be a material consideration on such an application. At this present inquiry HMIP has no substantive role. It is, I suggest, inappropriate for the Secretary of State to express views on radiological safety without the assistance of the Regulator. Hence this Inquiry is an inappropriate moment for alternative sites for a repository to be considered.
14.12.3		Any consideration of alternative sites must, however, necessarily involve assessment of the non-radiological environmental effects of a repository and the extent of the conformity of such a proposal to Development Plan policies, both in relation to those sites and to Sellafield. There is, however, no proposal for a repository at Sellafield before this Inquiry and nothing therefore upon which to make that assessment.

14.13 I do not accept that radiological safety issues at other sites than Sellafield is a material consideration on this present RCF application. I submit that it is not. For authorisation of a repository under the RSA 1993 Government policy(7) has set a risk target of 10-6 . Neither the Government nor HMIP is concerned to achieve a lower risk provided best practicable means are adopted. On an authorisation application for a repository at a particular site achievement of a lower risk than 10-6 at another site would accordingly be irrelevant. HMIP would not consider such an issue in deciding whether or not to grant an RSA authorisation. Dr. Duncan confirmed this in evidence.(8) Since radiological safety issues are for the Regulator, achievement of a lower risk than 10-6 at an alternative site would, I submit, necessarily be an irrelevant consideration on a planning application for a repository at a particular site. If, as I submit, that is correct, the potential for achievement of a lower post closure safety risk at an alternative repository site must necessarily be irrelevant on this RCF planning application.

14.14 The non-radiological environmental effects and planning policy implications of a repository at Sellafield must be immaterial on this RCF application. None of the principal parties has argued otherwise, least of all the County Council. Equally, therefore, on this application the non-radiological implications of a repository at an alternative site must be immaterial. And, again, no party has argued otherwise, save possibly Mr. Sheate of FOLD who argues that the Environmental Statement for the RCF should address the indirect secondary and cumulative effects of a repository.(9)

14.15 If neither the radiological nor the non-radiological implications of a repository at some other site than Sellafield can be material considerations on this RCF application, the existence of one or more alternative sites for a repository than Sellafield must necessarily, I submit, be an immaterial consideration.

14.16 Two considerations which Nirex accept are material to this RCF application bear upon this question whether the existence of alternative sites for a repository is also a material consideration. They are:

14.16.1		The rationality of Nirex's site selection procedure which led to its decision to investigate Sellafield as a potential repository site.
14.16.2		The sufficiency of the 'promise' of the Sellafield site for a repository if and to the extent to which there are planning objections to the proposed RCF.(10)

14.17 In the context of the first of these two considerations Nirex has led evidence of its assessment in 1988 of the radiological safety of 12 other sites considered in the MADA process. Upon the basis of that assessment Nirex has accepted, through the evidence of Mr. Folger(11), that other sites it has considered have, on the basis of the limited knowledge available, the potential for lower levels of post closure safety risk than the Sellafield B site then considered - the BUSC sites 6 and 7 for example. The County Council and other Objectors have, therefore, all the evidence they need to found an argument that for that reason planning permission for an RCF at Sellafield should be refused.

14.18 If Nirex succeeds on this Appeal in establishing the sufficiency of the 'promise' of the Sellafield site to the satisfaction of the Secretary of State, it would, it is submitted, be irrational for him nevertheless to refuse planning permission for the RCF because, on the limited knowledge available to Nirex, other sites have the potential to produce a lower level of post closure safety risk or for more confidence in an assessment at 10-6. At Sellafield Nirex have put down deep boreholes at 22 locations(12), and carried out a very substantial amount of other investigation from the surface - for example, quaternary boreholes, seismic surveying, pump tests, cross-borehole tests, tomographic surveys. At no other site, except Dounreay, have they carried out any physical investigations. Their knowledge of the other sites depends on the information and advice from BGS.(13)

### **The Environmental Statement**

14.19 I have already submitted that the Town and Country Planning (Assessment of Environmental Effects) Regulations 1988(14) (the "EA Regulations"), construed in the light of EEC Directive 85/337, do not require Nirex to produce any environmental information on alternative sites, and that they are accordingly not in breach of those Regulations. I rely upon the argument in COR/101B without repeating it.

14.20 For the reasons given in COR/101B, and above in these Closing Submissions, I also submit that the Secretary of State should not issue any Direction under Regulation 21 of the EA Regulations requiring any environmental information to be given in respect of alternative sites. In the context of Nirex's evidence on the site selection procedure sufficient information has been given to enable the County Council and other Objectors to advance relevant submissions.

14.21 I draw particular attention to the fact that the County Council did issue a Regulation 21 direction by letter dated the 3 October 1994 for "*the release of additional detailed material to the Council concerning the detailed reasoning for the Company's decision to focus attention on Sellafield.*"(15) Nirex responded to that request by their letter dated the 22 November 1994 with its enclosures.(16) The County Council did not in response to this letter dispute the sufficiency of this information in compliance with their direction or request more environmental information from Nirex in compliance with their duty under the EA Regulations, and proceeded to determine the RCF application in December 1994. They did not suspend determination of the application under Regulation 21(7). The County Council's letter of the 24 November 1994(17) is not a direction under Regulation 21. It would not, therefore, lie in the mouth of the County Council now to complain of the insufficiency of Nirex's environmental information.

14.22 No party to the Inquiry, except The National Steering Committee of Nuclear Free Local Authorities, has asked the Secretary of State or the Inspector (assuming he has power) to issue a Regulation 21 direction. The Secretary of State has not complied with this Committee's request, and the Inspector has not asked Nirex to supply further information on alternative sites or indicated any difficulty in reporting to the Secretary of State on the information which has been provided. His preliminary view expressed at the First Pre-Inquiry Meeting was that: (18)

*"The Inspectors were not minded to ask Nirex for any more environmental information on alternative sites than they had already provided as supplementary to their environmental statement, and particularly not geographical details. The information supplied by Nirex was considered to be adequate for the comparability exercise."*

The Inspector has not since expressed a change in that view.

14.23 It would, I suggest, be a quite exceptional and very serious step for the Secretary of State to take if he were, following receipt of the Inspector's report in Autumn 1996 then to issue a Regulation 21 direction. For the reasons I have given I submit that he should not do so.

14.24 If, in the language of Regulation 21(1)(b) of the EA Regulations, no further information on alternative sites is "*reasonably required to give proper consideration to the likely effects of the proposed development*", namely the RCF, it is very difficult, and I submit not possible, nevertheless to conclude that the existence of alternative sites is a material consideration on the determination of this appeal.

## The Development Plan

14.25 Policy 57 of the Joint Structure Plan(19) does not, I submit, apply to the RCF. The RCF is not a *"development concerned with the ..... disposal of nuclear waste"*. "Concerned" is a plain English word. It cannot include a development the nature and purpose of which is to investigate the potential of a site for a nuclear waste repository, any more than a borehole. Paragraph 4.71 of the Explanatory Memorandum uses helpful language in interpretation of the Policy, if interpretation were necessary, when it refers to *"further major developments associated with ... radioactive waste disposal"*. If the County Council, or the Secretary of State in his Direction to modify this Policy, had intended and desired that the Policy should apply to the RCF, they should have sought to place clear words in the Policy which would have that effect. But they have not. The proposal for an RCF was known to both the County Council and the Secretary of State, and is referred to in the Explanatory Memorandum at paragraph 4.70.

14.26 It is of importance on this question, though not I accept conclusive of it, that the County Council do not seek to suggest that Policy 57 does apply to the RCF. Mr. Guy Richardson in evidence agreed that the developments in this Policy concerned with the reprocessing or disposal of nuclear waste are different from the proposed RCF(20), and that this application is not concerned with nuclear re-processing or the disposal of nuclear waste(21). As I understand the thrust of his evidence, and that later of Mr. Hetherington, the County Council rely on this Policy because the Secretary of State should consider on this application the prospect of Nirex being able to satisfy the Policy in due course if a planning application for a repository at Sellafield were made. Mr. Hetherington put his point clearly. Thus in-chief he said:(22)

*" 5.11.....The Council maintains that the prospect of meeting the 'due consideration is given to alternative locations' test of Policy 57 is also applicable. ....*

*5.12.... planning permission should be refused on the basis that Nirex have not shown a reasonable prospect of satisfying the first criterion of policy 57(i)...."*

In cross-examination he told the Inquiry of the County Council's view that aspects of Policy 57(i) were relevant at this Inquiry because they provide the context in which the RCF application should be determined.(23)

14.27 Policy ENV 33 of the deposit draft of the Copeland Local Plan provided that the Borough Council would not support the RCF proposal unless a number of criteria were satisfied(24). The second required the proposal to demonstrate *"the suitability of the site for an ultimate repository"*. The Local Plan Inspector recommended the deletion of this requirement and further modification to require the proposal to demonstrate *"at this stage that further investigations of the suitability of the Sellafield site for an ultimate repository via the RCF are justified."*(25) Officers are to recommend the Council to accept his recommendation.(26) The Council had already proposed a change to the opening words of the Policy so that it reads *"The Council will support the proposal for a RCF at Longlands Farm, Gosforth so long as the following criteria are satisfied."*(27)

14.28 The Local Plan Inspector's reasons for his recommendation are a material consideration(28) and important:

*"I find criterion 2 of this policy worded rather perversely such that, in effect, the outcome of the RCF investigation needs to be demonstrated before it can be allowed to go ahead, It is accepted by Nirex that they have to demonstrate sufficient promise thus far for the investigation of this site to continue by means of the RCF proposal. This appears to me an appropriate criterion for inclusion in the policy. The Council's suggested re-wording to introduce consideration of alternative locations appears to seek to treat the RCF proposal as if it were a repository proposal ... "* (29)

I invite clear agreement to this reasoning.

14.29 The draft Local Plan is now at an advanced stage and should be given the greatest weight. This appeal should accordingly be determined in accordance with draft Policy ENV 33 in the form recommended by the Local Plan Inspector and the Council's Officers. It supports everything that I have submitted.

## The Irish Government

14.30 Much, but not all, of the thrust of the representations given to the Inquiry on behalf of the Irish Government relates to the claimed deficiency in Nirex's case on alternative sites for a repository. So this is a convenient place to respond to those representations.

14.31 I make no response on behalf of Nirex to any policy and political considerations which may arise from the Irish Minister of State's Statement of Case or his short oral statement to the Inquiry. He reports the policy of the present Irish Administration to seek a prohibition on the construction of an underground nuclear repository "*such as the one being proposed by Nirex at Sellafield*"(30), as he erroneously described Nirex's intention. He tells the Inquiry that

*"Any degree of radioactive contamination of the Irish Sea is simply not acceptable to the Irish people. The Irish Government is most strongly opposed to any proposal that could lead to the construction of a disposal site for nuclear materials next to the Irish Sea".(31)*

The UK Government's policy reaction to these representations, divorced from considerations of European or public international law binding on the Government, is a matter entirely for them. The Government currently has no policy against a coastal site on the Irish Sea for a deep waste repository. Its policy is supportive of Nirex's investigation of Sellafield as a potential site for such a repository, subject to the necessary planning permissions being obtained through the normal procedures.(32) The Government will, however, note that an inland repository site would eventually lead to discharges to sea, given that rivers and, potentially, airborne transport mechanisms would act to carry to the sea terrestrial discharges of long-lived radionuclides which are the key determinants of risk.

14.32 The Secretary of State will, however, note that the Irish Minister of State caused no evidence to be led at this Inquiry which seeks to quantify the extent and effect of any possible release of radioactivity into the Irish Sea from a repository at Sellafield, or still less to comment upon the evidence on that subject which Nirex have produced. In summary that evidence is:

14.32.1	Nirex's preliminary base case probabilistic post closure assessment of annual peak risk to an individual in a (current) temperate marine biosphere state (i.e. with an eventual marine discharge to the Irish Sea) is $6.9 \times 10^{-10}$ at 4 million years from closure (33). This is a little more than 3 orders of magnitude below the Government's risk target of $10^{-6}$ . There is no evidence of the critical group whose representative member is assessed to incur this risk, but this peak risk will be incurred by an inhabitant of the mainland which is currently England rather than Ireland.
14.32.2	The peak risk that might be incurred several thousand years in the future as a result of discharges of iodine-129 from the repository by a person living then on the continental shelf surrounding the current land mass of Ireland would be equivalent to less than 2 millionths of the radiation dose received from all sources by people living in Ireland today.(34) By comparison the authorised maximum discharge from THORP brings the total exposure from current Sellafield discharges to about 0.2% (about a 500th) of that received by the critical group in Ireland from all radiation sources.(35)

14.33 The submissions made by Mr. Lauterpacht QC on behalf of the Irish Minister of State that Nirex has by reason of the deficiency of its evidence breached European law lead, in two specific cases, to the concluding submission that the Secretary of State has consequently no lawful power to grant planning permission for the RCF. Thus:

14.33.1	Because the submitted Environmental Statement does not comply with EEC Directive 85/337 Annex III paragraphs (2) and (4) no planning permission should be granted.(36)
14.33.2	Because Nirex has led no evidence which justifies a repository at Sellafield or demonstrates optimisation of location the Secretary of State could not properly authorise the RCF.(37)

14.34 All except one of these and other claimed breaches of duty under European or Public International Law, whether actual or possible, depend ultimately upon equating this proposal for an RCF to a proposal for repository. I return to that requisite in a moment. I identify at this point the claimed breach which does not appear to have that requisite which I shall the deal with separately, i.e:

	14.34.1	If I correctly understand Mr. Lauterpacht's argument, he submits that the Directive 85/337 applies to the RCF application because the duty is to give information of indirect environmental effects, which must include those associated with a repository.(38)
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*EEC Directive 85/337*

14.35 Mr. Lauterpacht does not in terms submit that for the purposes of EEC Directive 85/337, and of Article 1(2) in particular, the project under application is a repository because the RCF proposal is part of it. I have submitted (39), and I repeat that submission, that the RCF is itself a project and it is that project which is under application.

14.36 The nearest Mr. Lauterpacht gets to such a submission is an oblique reference to the "*Minister's view that the RCF and the DWR seen as a single development are activities which will or are likely to result in an exposure to radiation.*"(40) It is plainly not a single development. The investigatory experimental works and activities to be carried out in and by the RCF are not the disposal of radioactive waste, and the fact that some of the shafts and galleries to be constructed might be proposed for re-use in construction and/or as part of any eventual repository(41) cannot change that fact. The RCF development will not result in any exposures to radiation.

14.37 Nirex has made no decision to build a repository at Sellafield.(42) No such decision could be considered until Nirex know whether they are likely to be able to present a post closure safety assessment which would satisfy the Regulators that they see no impediment to eventual authorisation of waste disposal and the grant of a site licence. Nirex would also need to be confident that they could construct the repository in safety and at an acceptable cost. Nirex are not in that position now. They do not have all the necessary information and the purpose of the RCF is to obtain it. Hence, contrary to the Irish Minister of State's assertion, Nirex has not proposed to construct a repository at Sellafield. It is, I submit, not possible to conclude on the evidence that it is more than possible that the outcome of further investigations through an RCF will enable satisfactory assessments to be made and hence lead to a decision to propose a repository at Sellafield. It is possible, but far from certain. This is not the case of the beginning of a development project which will be extended.

14.38 Hence, I submit, the absence of environmental information on alternative sites for a repository is not a breach of the EA Regulations construed in the light of the EEC Directive 85/337.

*Other Aspects of European and International Law*

14.39 Mr. Lauterpacht makes a number of erudite submissions which relate to other areas of European law and to public international law. With, as I have said, one exception these submissions depend on equating this proposal for an RCF to a proposal for repository. If, as I have submitted, the RCF is not part of repository project, this condition precedent to those submissions does not exist. The language of the other Directives and Conventions to which Mr. Lauterpacht refers is not couched, as is EEC Directive 85/337, in terms of a project. But the essential question remains the same. Is this present proposal simply a proposal for an RCF or is it in reality a proposal for a repository of which the RCF is but a preliminary part? That question of fact, for the Secretary of State to determine, is essentially the same as the question which arises on the EEC Directive 85/337. On that question I invite the Secretary of State to conclude clearly that it is not.

14.40 If the Secretary of State accepts that invitation, it is not incumbent on him to respond to Mr. Lauterpacht's substantive submissions. I make, therefore, no response on whether or the extent to which the case for the Irish Government is well founded if the Secretary of State were determining an application for a repository. I submit that he is not required to, and should not, rule upon those substantive submissions in anticipation of a repository planning application which has not been made. In making that submission I am not, however, to be taken as accepting that the UK Government is currently bound by the various Conventions relied upon by the Irish

Government, either at all or without significant qualifications not mentioned in the submissions on behalf of the Irish Government.

14.41 When a planning application is made for a repository, whether at Sellafield or elsewhere, questions of compliance with European or Public International Law may arise. On current assumptions this could not be until early in the next century. The Secretary of State cannot and should not anticipate what the law may then be.

*EEC Directive 85/337: Indirect Effects*

14.42 I return to the apparent exception to the generality of Mr. Lauterpacht's submissions (paragraph 14.34 above)

14.43 In my submission, Mr. Lauterpacht is fundamentally wrong in submitting that effects of a repository are the indirect effects of an RCF, such that the environmental statement for the RCF must include the effects of a repository. The implementation of a planning permission for an RCF will not enable the development of a repository, which will require planning permission, authorisation under the RSA 1993 and, if appropriate regulations are made in accordance with Government statements, a licence under the Nuclear Installations Act 1965. It follows that the effects of a repository are not part of the effects of an RCF, indirect or otherwise.

**The National Steering Committee of Nuclear Free Local Authorities**

14.44 There is little new in Mr. Woolley's submissions that I need to deal with. Nirex's response to his letter of the 28 June 1995 is before the Inquiry.(43) I have already, above, dealt with the question of what the project is for the purpose of EC Directive 85/337.

14.45 If, contrary to my submissions, there is some obligation under the EA Regulations and/or Directive to produce information on alternative sites, it is submitted that the information which has been produced before and at this Inquiry satisfies that obligation. Mr. Woolley does not argue that consideration of alternative sites should extend beyond those considered in MADA.(44)

14.46 Mr. Woolley's point about section 13(4) of the RSA is wrong. Nirex would need authorisation under section 13(1). Section 18(3), which applies to the controlled burial of some LLW at local authority landfill sites, is irrelevant.

**B: SITE SELECTION**

14.47 The second main issue arising under Alternative Sites springs from Nirex's selection of Sellafield as the preferred site for further investigation as a potential repository site.

14.48 Nirex accept that it is incumbent upon them to satisfy the Secretary of State that they have followed a rational procedure for identification of Sellafield, in July 1991, as the location at which to concentrate their further investigations for the development of a repository(45). The 1984 Green Book required a repository developer to show that it had followed a rational procedure for site identification and had not ignored a clearly better option for limiting radiological risks.(46) Whilst the Green Book is superseded in terms of policy by the July 1995 White Paper and is out of date in terms of its regulatory requirements(47), Nirex carried out its site selection procedures under the aegis of the Green Book. The Government's Review of Radioactive Waste Management Policy considered whether Nirex "may be considered to have adopted a reasonable approach in its investigations so far "(48), and the Secretary of State would no doubt expect Nirex to demonstrate the reasonableness of that approach at this Inquiry. If Nirex are to show a need and justification for its RCF proposal, to the extent necessary, and conformity with Policy 54 of the Joint Structure Plan and Policy ENV33 of the draft Copeland Local Plan - in the form recommended by the Local Plan Inspector and Copeland's Officers -it must, I accept, be necessary for them to show the reasonableness or rationality (I intend no distinction in the meaning of the two words) of the procedure by which they came to concentrate their investigations at Sellafield.

14.49 I submit, however, that Nirex are not required, as a material consideration at this Inquiry, to justify the merits either of their choice of sites to consider or of their sequential sieving of those sites to the point of decision to concentrate further investigations on Sellafield and Dounreay and then on Sellafield alone. There is - and I draw it -

a clear distinction between the rationality of the procedure of the site selection exercise so far on the one hand, and the merit of the decisions made during that procedure on the other. The latter would arise if the existence of alternative sites for a repository were a material consideration on this application, which I have submitted it is not.

14.50 Mr. Folger has given evidence of the site selection procedure which Nirex followed from the time they consulted the BGS in 1985 until the selection of Sellafield in 1991 as the site at which to concentrate their further investigations.(49) This evidence shows how Nirex followed the IAEA guidelines, as the County Council's consultants, ERM, agree they did.(50) PERA(51) and Nirex's communication to the County Council in November 1994(52) are other sources of such evidence.

14.51 In simple terms the procedure fell into four parts:

	i.	The identification of an initial 500 sites in Great Britain and the incremental sieving down to 12 for detailed consideration in a MADA process. A site underlying BNFL's Sellafield Works was included within the 500 sites - which subsequently came to be known as Sellafield A. When the sieving process had reduced the potential sites to 39 a second Sellafield option was introduced lying near to and to the east of the Sellafield Works - known as Sellafield B.(53)
	ii.	The MADA process which considered these 12 sites in November 1988, splitting one of the offshore options into two to make 13 sites, and recommended to the Nirex Board that 3, 4 or 5 sets of identified sites, each of which included Sellafield B, should be further investigated.
	iii.	The decision by the Nirex Board in March 1989 to investigate further Sellafield B and Dounreay.
	iv.	Nirex's decision in July 1991 to restrict its further investigations to Sellafield.
	i.	<b>500 to 12</b>

14.52 I do not understand that any criticism was made about the thoroughness of the process which led to the identification of the 500 sites (save Mr. Wright(54) for the Gosforth Action Group who criticised the procedure after the list had been reduced to 39) and the systematic reduction of that number to the 12 which went forward into the MADA process. None could, I submit, reasonably be made. The County Council in particular make no criticism of this process.(55)

14.53 The Inspector asked a number of questions of Mr. Parker for the County Council(56), though not of Mr. Chris Balch the expert planning witness for Nirex or of Mr. Folger, about the "orthodox planning way of selecting" a site. No evidence was, however, led by the County Council or any other Objector as to what this orthodox way was, or its appropriateness to Nirex's purpose to identify a site or sites in Great Britain for investigation for suitability as a deep repository site. Nor was evidence led to suggest how such an orthodox way differed in substance from the procedure which Nirex followed, or how - if it did - doubt is cast on the thoroughness and effectiveness of what Nirex in fact did. Without any such evidence I can make no submission on the point, if point there is.

14.54 What I can do, and what I do, is to ask the Secretary of State to express his general satisfaction with the procedure of site identification which Nirex carried out - with the help of the IGS (now the BGS), Pieda, what is now AEA Technology - an arm of UKAEA, Costain Engineering Ltd., Ove Arup, Electrowatt Engineering Services (UK) Ltd., Sir Robert McAlpine & Sons Ltd. and JMP Consultants(57).

14.55 I look later at the absence of direct public involvement.

	ii.	<b>MADA</b>
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14.56 On the other hand much criticism was levelled at the MADA process.

14.57 In general response to this criticism I make five initial submissions.



14.58 First, it is essential to understand the purpose of the MADA team, which was to reduce 12 potential sites (increased within MADA to 13 by splitting one site into two) down to a short list that could be recommended to Nirex for further investigation.(58) That is what they did. They recommended that at least 3 sites be investigated and that there might be merit in investigating up to 5.(59)

14.59 Second, the Secretary of State should be in no doubt that the team had no ulterior motive to ensure the inclusion of Sellafield B in the short list. Its inclusion was an output from the analysis, not some 'hidden agenda' input. No one has suggested the contrary. The integrity and repute of the team's members, whether from Nirex or consultants of international standing (BGS, JMP, AEA, Piedad),(60) as well as of Dr. Phillips himself, assure the intellectual independence and honesty of their work.

14.60 Third, the thrust of the initial criticism levelled at the MADA process, whether by the County Council, Greenpeace or other Objectors, was directed at the insufficiency of the information provided by Nirex about the process. That criticism was effectively met by the evidence of Dr. Phillips.(61) Mr. Parker of ERM, for the County Council, is satisfied that he had sufficient information to allow him to conduct the exercise he wished to carry out, namely to repeat the calculations by looking at different weighting sets.(62) This information was sufficient to enable the County Council to mount their principal arguments that because safety is paramount MADA's recommendations 3 and 4(63) should not have put Sellafield B above Site 6 but possibly just behind it(64), and that the Board of Nirex should have chosen to concentrate further investigations on at least 3 sites (including Site 6)(65) . The information given in PERA was indeed enough for this purpose.(66)

14.61 Fourth, without revealing the identity of all the 13 sites and turning this Inquiry into an inquiry into the merits and demerits of those sites for a repository (a point I have already dealt with) Nirex were unable to, and did not, produce the base data which underlay the performance measures, ratings and preference scores used by the MADA team. I submit that this lack of information did not hamper the County Council in making points which it wanted to make, for the reasons I have given, or Dr. Stirling in making his points, essentially confined to the legitimacy of the weightings used by MADA.

14.62 Fifth is the concluding and considered response by the County Council to the evidence led on behalf of Nirex and the County Council on the MADA process. This was given by Mr. Hetherington in his Supplementary Proof of Evidence where he said(67):

*"The County Council accepts that MADA provided a reasoned basis to proceed to identification of a final short list. ... It is .. accepted that Sellafield emerged fairly from this process as a candidate site."*

This is the pith of my submission. I invite the Secretary of State to agree.

14.63 What is arguably left?

#### *Sensitivity Analyses*

14.64 In addition to erecting a Base Case the MADA team carried out a range of sensitivity testing. Four alternative Cases were postulated which varied the Base Case nodal weightings - Costs, Robustness, Safety and the Environment - reflecting different viewpoints by substantially different weightings.(68) Other sensitivity analyses enabled the display of the scores for all sites in respect of one node to be plotted against the scores for any other node.(69). Figure 3 to Dr. Phillips' evidence exemplifies this type of analysis. I do not remember one question being put in cross-examination on this analysis or one point on it being made by an Objector's witness. The HIVIEW computer programme used by Dr. Phillips enabled sensitivity analyses to be done by varying, between 0% and 100%, the weights attaching to any node or individual attribute and calculating the resulting effect on the preference scores for the different sites.(70) Figures 4 to 7 to Dr. Phillips' evidence are printouts of examples of these analyses. The MADA team's recommendations took account of these sensitivity analyses which, I submit, were thorough and sufficient. Dr. Stirling gives no indication of how the team's eventual judgment would have been helped or affected by any further type of analysis.

#### *Weighting on Safety and Costs*

14.65 Criticisms were made of the weightings given in the Base Case to the Costs and safety nodes, broadly 71% and 7% respectively.(71) The use of sensitivity analyses which substantially varied these weightings shows how the team did not confine their consideration to the Base Case.

14.66 Changing the weighting on the safety and/or costs nodes changes the difference in preference scores between the sites. Figures 4 and 6 of Dr. Phillips' evidence show that a shift of some 14 % points (about a fifth) on the total weight on costs, and some 8% points (more than double) on the total weight on safety, is needed before Sellafield B loses the highest weighted preference score. It remains in the top four until the safety weighting is increased from 7% to some 67% when it is overtaken by Site 12, or the cost weighting drops to some 30%.

14.67 The need for substantial weighting changes before it is possible to justify exclusion of Sellafield B from the MADA shortlists for further investigation raises two specific further points.

#### *The Cost of a Life*

14.68 The first relates to the imputed or implied value or cost of a life. Dr. Phillips told the Inquiry that the judgment to give the weighting on costs ten times the weighting on safety was the consequence of valuing a life at £300,000.(72) He was not asked and did not say exactly how that figure had been arrived at, though he did say, in answer to questions by the Inspector, that all costs and all deaths had been summed, assuming equal weights, over, he thought, a period of 100 million years.(73) Mr. Parker did a calculation which arrived at figure of about 2,400 deaths over that same period.(74) Whilst he did not say how he had done this calculation, he had evidently taken the range of total costs of £7,250m from Dr. Phillips' Table 1 and divided it by £300,000. Whilst this Table 1 shows a range of 0 to 90 pre-closure non-radiological deaths, no other evidence of deaths has been given, least of all as to how many of the arithmetic 2,400 falls within attribute 20 - post-closure safety to society between 100,000 and 100 million years after closure. If the range in that period were significant and either ignored or heavily discounted - on which there could be much argument - the imputed or implied value of life of £300,000 would rise. More than that cannot be said.

14.69 I do not intend to enter into the argument whether any significantly greater imputed or implied value should reasonably have been assumed than £300,000. This is a very subjective matter. It is enough to point out that with the weighting on safety increased to 67% - as it must before Sellafield falls out of the first four sites - the implied value of life becomes some £7.4m.(75)

#### *Post-Closure Safety*

14.70 All sites were seen as having the potential(76) to achieve the Regulator's annual risk target of 10<sup>-6</sup>. The MADA team's view was that relatively little importance should be attached to the margins by which particular sites were calculated to meet the target(77). The Regulator was not concerned in 1988 under the 1984 Green Book (nor is he now under Government policy explained in the July 1995 White Paper) to achieve a lower post closure risk target than 10<sup>-6</sup> provided that best practicable means were employed to limit discharges. There is no reasonable basis, it is submitted, for attaching such importance to the achievement of a lower individual risk than 10<sup>-6</sup> as would result from giving a significant increase to the weighting on the safety node. The relative differences in the assessed scores for post-closure individual safety were small compared with the relative differences in other attributes such as costs. Appropriately, the weightings reflected this.

14.71 The main focus of evidence about the safety performance of the Sellafield site has been on its post-closure radiological performance. But other aspects of safety are also important, both radiological and non-radiological, pre- and post-the closure of a repository. Mr. Folger gave evidence, which was not disputed, about the assessment made for MADA purposes of the pre-closure radiological doses to the public. For the Sellafield option that dose was substantially below that for any other location.(78) This advantage reflects the fact that more than half the ILW requiring deep disposal arises from BNFL's operations at Sellafield, and public doses associated with waste transport would be minimised by siting a repository nearby. The Green Book required that waste transport implications be fully considered in justifying the choice of a site.(79) Dr. Cunningham (80) emphasised the importance of waste transport movements in the calculation of risk to people.

### *Robustness*

14.72 Progressively increasing the weights on attributes 12 and 13 (geological certainty and investigability) would eventually have taken overall preference scores for Sites 6 and 7 - and also Sites 2, 3 4 and 8 - above Sellafield B. Sites 4 and 8 scored less well on other attributes, so they were dropped by the MADA team for their relatively poor showing under a wide range of weighting schemes(81). Sites 2, 3, 6 and 7 were all included in the recommended shortlists. Thus it is difficult to see, and no witness has suggested, how such an increase in weighting on attributes 12 and 13 would have aided the MADA's team judgment on the short list of sites to be recommended for further investigations.

### *Environment*

14.73 Very little has been said about the scores and weighting used in the Base Case for the Environment group of attributes. In five of his 7 weighting sets Mr. Parker gave this node a weighting of 5%(82), 2% points less than in the MADA Base Case. The County Council, the local planning authority, did not therefore suggest that too little importance had been given by MADA to the environment. Dr. Stirling did not touch upon this subject save for his general criticism of the weighting sets. The MADA analysis showed that a weighting on the environment node of more than 45% would be needed to displace Sellafield B.(83) No one suggested this.

### *Divergent Perspectives*

14.74 Consultation on weightings with such outside bodies as local authorities, interest groups. commercial organisations, unions and professional associations - Dr. Stirling's suggested list(84) - would no doubt have produced a wide range of views on weightings. It would still have been left to the MADA team to set the Base Case weightings. The arguments between costs, safety and robustness would still need to have been resolved. The sensitivity analyses showed that Sellafield B continued to score consistently well under a range of different weighting sets intended to simulate different perspectives on what was important.

### *Reasonableness of the MADA Weightings*

14.75 Which brings me to my last detailed point. Individuals and individual groups will have different opinions as to how the various attributes should be weighted which reflect their different viewpoints and subjective judgments. The Secretary of State and the Inspector may have theirs. But the question is not what any one else's judgment might be, but whether the MADA team's judgment was reasonable - having regard to the divergent considerations to which it needed to have regard. Cost to Nirex as the developer, and thus to its waste disposal customers and eventually to the taxpayer and electricity consumer, must be important. Post-closure safety was assured by excluding any site which was not assessed to meet the Regulator's target. The environment is important, but the 12/13 sites considered in MADA had satisfied environmental screening stages in the sequential sieving process.

14.76 I invite, therefore, agreement by the Secretary of State that the Base Case weightings used by the MADA team, tested through the various sensitivity analyses, provided a fair and reasonable basis for their short list recommendations. As the County Council have accepted on reflection, Sellafield fairly emerged within the recommended short list of three.

### *Conclusion up to March 1989*

14.77 The site selection procedure up to the Board's March 1989 decision was, I submit, rational and reasonable.

	<b>iii.</b>	<b>The March 1989 Board Decision</b>
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14.78 The Board of Nirex in March 1989 noted that(85):

*"As the site selection work progressed in parallel with the discussion process [i.e. The Way Forward] it became clear that the various sites under consideration could be divided into two categories: those where*

*there is a measure of support for nuclear activities in the local community and those where there is not.*"(emphasis supplied)

They decided that:

*"In view of this, and recognising the practical difficulties of investigating sites in parallel, Nirex has decided as a first step to limit further investigations to two areas where there is a measure of public support, namely, Dounreay in Caithness, and Sellafield in Cumbria."*(emphasis supplied)

In short the Nirex Board set aside Sites 6 or 7 from the MADA team's first short list and opted for Dounreay rather than Site 2 in Caithness.(86)

14.79 Nirex did not ignore any "*clearly better option for limiting radiological risks*" (87) in the site selection procedure. Sites with a potential for lower risks were considered but not selected for reasons given to the Inquiry.

14.80 This Nirex decision was reported to the Government. The Chairman of RWMAC wrote to the Secretary of State on the 16 March 1989(88). The Committee had reviewed Nirex's site selection procedure leading to the identification of a shortlist of 12 sites. They found Nirex's approach "*defensible*". They accepted -

*"... the logic in identifying the two further areas for further evaluation which include the nuclear installations of Dounreay and Sellafield. The Nirex decision is consistent with our advice given to yourself in the published RWMAC response to Nirex's consultative document 'The Way Forward'"*

RWMAC stated that "*sites associated with better radiological conditions, and which are more robust in radiological terms, exist.*" But they reported that -

*"... it would be inappropriate for such sites to be evaluated by detailed site investigation until the suitability of Dounreay and Sellafield had been established."*

14.81 The Secretary of State reported the Government's view on Nirex's decision to the House of Commons in a Written Answer to a Parliamentary Question on the 21 March 1989.(89) The Government, he said, had consulted RWMAC and "*accept*" Nirex's report.

14.82 Nothing, in my submission, has occurred at this Inquiry into the detailed investigation of Nirex's site selection procedure which justifies the Secretary of State in expressing a different view on Nirex's decision than that of the Government in 1989. The decision to concentrate further investigations on Sellafield and Dounreay, as a first step, was a rational one.

14.83 There is in the first place nothing irrational in the Board's recognition of the practical difficulties of investigating sites in parallel. No one has suggested to the contrary at this inquiry.

14.84 The importance attached to the presence of a measure of support for nuclear activities in the local community is entirely rational. It recognises the reality. It pays attention to the comfort - my word - of local people in potentially hazardous industries which they can understand better than others, and the need for industry and people to live side by side. It pays attention to good neighbourliness. It does not pretend that it will be easier to obtain planning permission for a repository in an area where there is such a measure of support. The Secretary of State has said that he would call in any such planning application and his decision will be based on material considerations in law.

14.85 I invite rejection, therefore, of criticism of Nirex's March 1989 decision to concentrate further investigations at Sellafield and Dounreay as a first step.

	<b>iv.</b>	<b>The July 1991 Decision</b>
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14.86 The further investigations were then carried out at the two sites. In July 1991 Nirex announced their decision to concentrate on Sellafield as their preferred choice, though Dounreay would remain as an option.(90) The important factor given for that decision was "*Transport ...because approximately 60% of the radioactive waste*

*destined for the repository arises from BNFL's operations there" (i.e. at Sellafield). The County Council were told by letter of this decision(91), and that it did "not mean that (Nirex) have yet decided to submit a planning application for the construction of a repository." That remains Nirex's position.*

14.87 I remember no criticism of the reasons for this decision, which I submit are rational.

### **Public Involvement**

14.88 Nirex have been criticised for lack of public involvement in their decision-making process. Nirex's site selection has not been peer reviewed. Nothing has been put into the public domain except through PERA, the November 1994 communication to the County Council and at this Inquiry. There was through the Way Forward exercise public consultation on the broad approach, but there was no public participation in the MADA process or the March 1989 decision.

14.89 I respond with three principal points.

	14.89.1	First, the rationality of Nirex's site selection procedure is unaffected by the absence of public involvement.
	14.89.2	Second, the confidentiality of the sites considered by Nirex could not have been maintained with public involvement.
	14.89.3	Third, the question whether there should have been public involvement in the site selection procedure is very much a matter for Government policy, and Government has not suggested that there should be, though the July 1995 White Paper provided the opportunity for such a policy.

### **Definition of the PRZ**

14.90 The geological site considered as Site 10 in the MADA process lay generally NE of the Sellafield Works. (92) The surface implications of such a site were considered by reference to the Pelham House school estate. Following their March 1989 decision Nirex moved their attention a little further south-east to avoid the carboniferous limestone; BH2 was sunk as a first step. The PRZ is now defined south of the Pelham House school and the RCF proposal on Longlands Farm is some 2.4 kilometres south east of Pelham House.

14.91 I submit that the scale of this shift is too small to uncouple the site selection process which led eventually to the MADA recommendation in November 1988 to investigate three sites which included Sellafield B (then geographically Pelham House School), and then to the decision in March 1989 to concentrate further investigations on that site and Dounreay, from the July 1991 decision to concentrate further investigations on the PRZ which by then had centred on Longlands Farm and the later proposal for an RCF in this PRZ.

14.92 The cost of constructing waste transport arrangements between a waste reception area at the Sellafield Works and either Pelham House school or Longlands Farm would be broadly the same. The distance from the Pelham House school is greater(93), and the depth of the BVG at Pelham House school no less.

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(67)	PE/CCC/7/S1 p. 27
(68)	PE/NRX/18 para 6.3, Table 6
(69)	PE/NRX/18 para 6.4
(70)	PE/NRX/18 para 6.6.
(71)	PE/NRX/18 Tables 4 & 6
(72)	PE/NRX/18 para 5.12
(73)	Day 31 am
(74)	Day 42 pm
(75)	NRX/18/5
(76)	COR/104 p.104 para 4.1.1
(77)	PE/NRX/12 para 6.41
(78)	PE/NRX/12/S1 para 6.12
(79)	GOV/302 para 5.5
(80)	XX Day 43 am
(81)	PE/NRX/18 para 6.2
(82)	PE/CCC/6 Tabs 3, 4
(83)	PE/NRX/18 Fig 7
(84)	XX Day 52 am
(85)	COR/501 para 6.7.11
(86)	COR/501 para 6.7.11
(87)	GOV/302 para 5.4
(88)	GOV/402 Appendix C
(89)	GOV/211

(90)	NRX/12/1 p.11
(91)	NRX/12/2 p.10
(92)	NRX/12/11A
(93)	Higham XX Day 63 am



# **UNITED KINGDOM NIREX LIMITED**

## **Rock Characterisation Facility**

**Longlands Farm, Gosforth, Cumbria**

### **CLOSING SUBMISSIONS OF THE APPELLANT**

#### **15. CONDITIONS**

##### **Part A Conditions**

##### **15.1 COR/113:**

- sets out the conditions that Nirex and the County Council agree would be acceptable if planning permission for the RCF were granted by the Secretary of State;
- also contains Schemes A-H, agreed by Nirex and the County Council, relating to some of the conditions;
- indicates whether or not each condition is also agreed by Copeland Borough Council ("CBC") and Gosforth Parish Council ("GPC"). Where a condition is not agreed by CBC or GPC, Nirex's position on the matter is set out in Section 5 of these submissions.

15.2 There are 2 matters on which there is disagreement between Nirex and the County Council about whether conditions should be imposed.

##### *Condition 14 - Hours of Working*

15.3 The simple position adopted by Nirex in relation to the conditions suggested by the County Council(1) and Borough Council(2) is that they are unnecessary because they duplicate the effect of other controls, namely conditions 9 and 10 (control of noise)(3).

15.4 The County Council's suggested justification for condition 14 - that it is simple to enforce(4) - is not sufficient to justify the imposition of the condition.

15.5 The County and Borough Councils' suggested conditions seek to restrict working days as well as working hours. But they have not led evidence to show that what is acceptable on a Monday or on a Saturday morning becomes unacceptable on a Bank Holiday Monday, a Sunday or a Saturday afternoon.

15.6 Neither the County Council nor the Borough Council has produced evidence to demonstrate that condition 14 "is necessary to prevent disturbance within the locality"(5).

15.7 It is to be observed that the County Council did not consider it necessary to impose any restriction on either days or hours of working when they granted planning permission for the RCF/RCM boreholes on 24 May 1993.(6)

15.8 It therefore seems to be neither necessary nor in the light of the evidence given by the parties justified to introduce a limitation in relation to these matters in respect of the RCF that has not been thought either appropriate or necessary to impose hitherto. So Nirex resist it for those reasons.

15.9 But if the Secretary of State were minded to impose a condition restricting hours of working, then the County Council's proposed condition 14 would be acceptable to Nirex, if imposed in the following amended form, restricting the carrying out of the works specified in that condition to the period from 0700 to 1900 hours, on any day. The condition would then read:

*"No construction of the platform site and haul roads; foreshaft excavation; surface construction and demolition activity; bund formation; soil stripping, storage and replacement; restoration works; or the deposit of waste materials at the spoil disposal area shall take place on site outside the hours 0700 to 1900".*

15.10 There should be no restriction on hours of working in respect of other aspects of RCF construction. Indeed, the County Council seek none.

#### *Condition 16 - Safeguarding of Groundwater Resources*

15.11 I have already submitted(7) that this condition suggested by the NRA is unnecessary. However, if the Secretary of State is persuaded that the NRA proposed condition meets the tests set out in Circular 11/95, then Nirex do not resist such a condition in the terms suggested by the NRA.

#### **Part B Conditions**

15.12 The purpose of the suggested conditions set out in Annex A to the report of the Informal Meeting No. 5 appears to be directed towards matters which are or might be relevant to a determination by the Regulator as to whether any repository that might eventually be built at the site should be authorised under the Radioactive Substances Act (RSA). The suggested requirement for the Local Planning Authority to consult the Environment Agency supports that view. How are the Environment Agency to involve themselves in the approval of a scheme in the absence of an application under RSA giving them statutory jurisdiction to act? If the Environment Agency decline to become involved, how are the County Council to assess the submissions that they would be required by the conditions to consider for approval? Rather they appear to relate to the prospect, as yet uncertain, of an application for an RSA authorisation.

15.13 Given the fact that the Nirex programme is still at an investigatory stage, there can be no role for the Regulator at the moment. That cannot be a reason for seeking to put the planning authority in the position of the Regulator.

15.14 If the Secretary of State accepts the County Council's submission that the conditions drafted by the Assistant Inspector and intended to address the concerns of Friends of the Earth are potentially lawful, it would nonetheless be inappropriate to impose conditions about which the Local Planning Authority have reservations and unnecessary to do so in the light of the assurance given by Nirex in the terms set out at paragraph 12.25 of these submissions.

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#### REFERENCES

(1)	CCC/1/25
(2)	CBC/2/4
(3)	DOE Circular 11/95 Annex para 22
(4)	Closing submission of Mr Drabble, para. 9.1, pp28 & 29
(5)	Mr Hockman Day 23 am

(6)	COR/201 page 229
(7)	para 5.15

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# **UNITED KINGDOM NIREX LIMITED**

## **Rock Characterisation Facility**

**Longlands Farm, Gosforth, Cumbria**

### **CLOSING SUBMISSIONS OF THE APPELLANT**

#### **16. CONCLUSIONS**

- 16.1 And so I draw these Closing Submissions and this Inquiry to an end. What are the key points?
- 16.2 First, I suggest, is that the environmental effect of the proposed RCF will be temporary and has been minimised to a level where it is acceptable and not substantial. Conditions may be imposed to satisfy justifiable concerns.
- 16.3 Second, the development is in general accordance with the provisions of the approved Structure Plan and the draft Local Plan which is approaching the stage of approval, subject to any need in compliance with Policy 54(i) of the Structure Plan to show that benefits outweigh any harm to the environment
- 16.4 Third, Nirex have demonstrated beyond any doubt that they need the RCF to provide them with information necessary to the establishment of a safety assessment that would satisfy the Regulator that there was no impediment to the grant of an authorisation for radioactive waste disposal, and hence necessary to a decision whether to propose a repository at Sellafield. No objector to this RCF proposal has doubted that need.
- 16.5 Fourth, Nirex have clearly shown that the Sellafield site has sufficient potential for a repository to justify further investigations via an RCF. The strength of Nirex's case goes beyond satisfying the Secretary of State that the Regulator would not be bound to refuse an RSA authorisation if Nirex were to apply for one in the future.
- 16.6 Fifth, the RCF would therefore provide substantial benefits in the public interest which clearly outweigh the temporary and limited environmental effect it would cause.
- 16.7 Sixth, Nirex have established the baseline conditions so that there is no reason why RCF construction should not begin.
- 16.8 Seventh, no purpose is to be served by Nirex carrying out further surface based investigations divorced from a parallel construction of the RCF. Such investigations would not give Nirex the information they need, and would involve unwarrantable cost and delay.
- 16.9 There is, accordingly, a clear cut case for the grant of planning permission for the RCF. There is no clear cut reason for refusing it.
- 16.10 Since much has been said at the Inquiry about the relevance of the measure of support for nuclear activities in the local community, I draw attention to the fact that only some 3% of the 3,244 written representations submitted to the County Council or the Secretary of State came from people with an address in the Borough of Copeland. 40% of those representations favour the RCF. 4% are neutral. 56% are against. That is very few.
- 16.11 I urge the Secretary of State, therefore, to grant planning permission - and to do so as soon as he may.

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